DOCUMENT RESUME

ED 414 834 HE 030 820

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TITLE Faculty Development for an Undergraduate Three-Year Primary Care Program.
INSTITUTION Illinois Univ., Chicago. Coll. of Medicine.
SPONS AGENCY Fund for the Improvement of Postsecondary Education (ED), Washington, DC.; Chicago Community Trust, IL.
PUB DATE 1995-08-31
NOTE 74p.
CONTRACT P116A20260
PUB TYPE Reports - Descriptive (141) -- Tests/Questionnaires (160)
EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Clinical Experience; Clinical Teaching (Health Professions); Curriculum Development; *Faculty Development; Higher Education; Instructional Improvement; *Medical Education; *Physicians; *Practicum Supervision; *Premedical Students; Program Evaluation; Questionnaires; *Undergraduate Study
IDENTIFIERS *University of Illinois Chicago

ABSTRACT

A project to develop the Longitudinal Primary Care Program at University of Illinois at Chicago College of Medicine is described. In addition to producing three curriculum documents, this 3-year project included a faculty development program, preparation of a training handbook and communications system for medical preceptors, and development of a program evaluation protocol. Students in year 1 are assigned to a volunteer preceptor for 3 years to learn from one-to-one interaction with physicians in family medicine, general medicine, or pediatrics. During the first year students attend half-day sessions once a month with their preceptor; in the second and third years, the half-day sessions are held twice a month. There are three required courses: "The Doctor and Patient" (year 1); "Doctor and Patient, Family, and Community" (year 2); and "The Doctor, the Patient and Continuous Care" (year 3). Ten evaluation instruments were developed. Physician peers were used to train preceptors, and three faculty workshops were developed, as were two self-instructional packages to help physicians in their teaching role. The content of faculty training evolved as a result of a preceptor survey, which is appended. A program evaluation student survey and program evaluation results are also appended. (SW)

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TITLE: Faculty Development for an Undergraduate Three-Year Primary Care Program

ED 414 834

Grantee Organization:	The University of Illinois at Chicago Department of Medical Education 986 CME, M/C 591 808 S. Wood Street Chicago, IL 60612
Grant Number:	116A20260
Project Dates:	10/01/92-8/31/95
Project Director:	Annette Yonke, PhD Department of Medical Education University of Illinois at Chicago 986 CME, M/C 591 808 S. Wood Street Chicago, IL 60612
FIPSE Program Officer:	Joan Staumanis Carolyn Forman

GRANT AWARD:

Year 1	81,239
Year 2	74,893
Year 3	72,388
TOTAL	228,520

HE 030 P20

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TITLE: Faculty Development for an Undergraduate Three-Year Primary Care Program

The project established the Longitudinal Primary Care (LPC) program in a major U.S. medical school. Students in Year 1 are assigned to a volunteer preceptor for three years to learn from one-to-one interaction with their preceptors who are family medicine, general medicine or pediatrics physicians. Program size is significant with 320 volunteer physicians and 390 medical students at 250 office practices throughout metropolitan Chicago. The LPC program has a three-year curriculum, a faculty development program for preceptors, and an evaluation and dissemination program. Results are that one-on-one learning and teaching at many sites has led us to examine the relationship and level of engagement between the student and preceptor as an outstanding feature of the program.

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Published papers:

Freeman, J., Cash, C., Yonke A., Roe, B., Foley, R. A Longitudinal Primary Care Program in an Urban Public Medical School: Three Years of Experience. **Academic Medicine** 70, No 1 Supplement (1995): S64-S68.

Lemon, M., Yonke, A., Roe, B., Foley, R. Communication as an Essential Part of Program and Institutional Development. **Academic Medicine** 70 (1995): 884-886.

Foley, R., Yonke, A., Smith, J., Roe, B., Vance, J. Recruiting and Retaining Volunteer Community Preceptors. **Academic Medicine**, to be published in May issue, 1996.

Products:

3 curriculum documents
4 sets of faculty development workshop materials
2 training manuals
10 instruments for program evaluation
6 brochures for recruitment and faculty development

Executive Summary

Title: **Faculty Development for an an Undergraduate Three-Year Primary Care Program**

Grantee: University of Illinois at Chicago
The Department of Medical Education
986 CME, M/C 591
808 S. Wood Street
Chicago, IL 60612

Director: Annette Yonke, PhD
(312) 996-5448

Project Overview

How the project started. The project originated in 1991 at the University of Illinois at Chicago College of Medicine (UICCOM) as the shifting health care environment began to impact academic medical centers. The practice of medicine and the education of medical students was in early transition from subspecialty to general patient care and from hospital to ambulatory settings. In 1991, few major medical schools had actually designed programs to teach students the elements of longitudinal primary care of patients and their families.

What happened? The FIPSE project established the Longitudinal Primary Care (LPC) program at UICCOM as a curriculum innovation and faculty development program that is now fully institutionalized. In the first year of medical school, students are assigned to a preceptor with whom they interact one-to-one for three years. In Year 1, students attend a half-day session once a month with their preceptors and, in Years 2 and 3, a half-day session twice a month. The preceptor is a primary care physician in family medicine, general medicine or pediatrics. Now in its fifth year, the LPC program has grown from a 56-student volunteer pilot program to a required three courses covering the first, second and third years. With numbers now at 320 volunteer primary care physicians and 390 medical students at 250 medical practice sites, we expect to add another 180 physician preceptors and at least 50 additional sites for the incoming class of 1996. Since its inception, the LPC program not only has established a faculty development program for preceptors and an evaluation program and staff that is supported by the institution, but has produced three LPC curriculum documents.

The three-year FIPSE grant also attracted funding from the Chicago Community Trust ($398,000) and provided the foundation for the LPC program to become a demonstration model for the Interdisciplinary Generalist Curriculum project that in 1995 was funded by the U.S. Department of Health and Human Services ($300,000). We published two papers in *Academic Medicine*, presented at 8 professional association meetings, and submitted two additional articles to professional journals. Recently we prepared a competitive proposal for the National Board of Medical Examiners to disseminate our evaluation methodology to medical school evaluators. Finally, the LPC program is playing an important role in the reformulation of the four-year medical school curriculum that, at present, is in preparation.

Purpose

Our project addressed the problem of the traditional curriculum and practices of medical schools, in which students were educated in hospital settings by sub specialist physicians. Students learned to care for patients for the short-term. Follow-up and return visits and patient care were connected to hospitalized illness.

Longitudinal, ambulatory and primary care of patients were unknown to students. For us, this FIPSE project highlighted the necessity for a transformation of medical education. In 1991, managed care began to have significant effects on the academic medical centers. Medical practice experienced economic reform and the medical school curriculum had to follow. But in academic medical centers, there were no general curriculum models to educate students nor to recruit and train volunteer community faculty for long-term care of patients and their families. In short, the dominant knowledge base of the institution had been called into question because of health care reform.

We entered into this project understanding that, because of its size and scope, full institutionalization must be the number one priority, and this priority must be planned and implemented each year. To restructure a curriculum for a longitudinal primary care program required fundamental changes in faculty perception, the medical school work force, decisions of curriculum committees, the institutional commitment and dollars to support the recruitment of preceptors, and the daily management and the evaluation of the program.

Background and Origins

The Chicago campus of The University of Illinois College of Medicine admits 180 students annually. In 1994, after a three-year pilot stage, the Longitudinal Primary Care program became a required course for all 180 incoming students. The principal goals of the LPC program were to provide students with patients for primary care for a three-year period. Students also needed to integrate basic sciences courses with clinical practice and to learn clinical problem-solving skills. They also were to be exposed to the work of primary care physicians and other health and social service professionals in the communities.

The program had no external support at the outset. FIPSE funding, however, paved the way for full implementation and faculty cooperation with grant support for the project. In addition, we received $398,000 from the Chicago Community Trust to complement the FIPSE funding for faculty development which allowed us to conduct Curriculum Implementation workshops for preceptors in the community. We also won a prestigious contract, the Interdisciplinary Generalist Curriculum project award funded by HRSA. As one of ten demonstration schools in the U.S., we will implement a two-year course to function as the anchor course for the LPC program. To date, the total amount of external funding to implement the required three-year LPC program is $900,000.

Project Description

The goal of the FIPSE project was to develop an infrastructure for a three-year LPC program in the College, a permanent LPC faculty development program, a training handbook for preceptors, a communications system for preceptors, and an evaluation protocol for the program.

The infrastructure of the LPC program now is set with a three-year program consisting of three required courses for all medical students that has been approved by the UIC Vice Chancellor for Academic Affairs. Upon completion of the FIPSE grant, staffing for the program will be supported by the College of Medicine.

The faculty development program is fully institutionalized, with Continuing Medical Education accredited workshops held at decentralized training sites, trainers who are preceptors themselves, two handbooks for trainers, and three courses: *Curriculum Implementation*, *Teaching Medical Interviewing in Primary Care*, and *Providing Effective Feedback and Supervision*. In addition, two self-instructional packages with CME credit have been developed: *The Use of Questions to Promote Problem-Solving* and *How to Teach Students to Become Self-Directed Learners*. To date, 49 faculty development workshops have been conducted for 534 participants.

Communication with preceptors is via mail, telephone, a quarterly newsletter and faculty development workshops. Initial plans to provide an electronic communication system was stalled by a rejected bid for grant funding and the finding that very few preceptors are computer literate.

In developing the program evaluation protocol we have developed and refined 10 instruments: Student Specialty Choice, administered annually; Preceptor Motivation, every three years; Student Experience at the LPC Site, annually; Site Survey Information for new preceptors; Faculty Development Evaluation following each workshop; Telephone Survey for Monitoring all Preceptors, annually; Telephone Survey for Debriefing M3 Preceptors; and M1, M2 and M3 focus group instruments. We chose a log-linear probability model, called Rasch, as our statistical data analysis method. We also rebuilt our data base using Paradox, a relational database system that allows us to track demographic and administrative information.

Evaluation Results

While formative evaluation has been the overriding focus of the program to date, greater understanding of the uniqueness of one-on-one learning and teaching in a wide variety of situations is leading us to probe more deeply into the relationships and learning students experience. Overall, we have found volunteer students enjoy a mentor-like relationship with their preceptors that starts in the first year, and preceptors say they volunteer for altruistic reasons. Evaluation of preceptors' practice site characteristics and careful monitoring of both the preceptor and the student uncovers potential problem relationships that are resolved by program staff.

Summary and Conclusions

This FIPSE project was timely and significant in that it supported the development of a Longitudinal Primary Care Program for a large metropolitan medical school. The most significant indicator of its success in the medical school is the fact that the program has become an integral part of the institution. The most profound indicator of its success, however, lies in the words of students whose experiences have given them a deeper understanding of patients as human beings.

TITLE: Faculty Development for an Undergraduate Three-Year Primary Care Program

The project established the Longitudinal Primary Care (LPC) program in a major U.S. medical school. Students in Year 1 are assigned to a volunteer preceptor for three years to learn from one-to-one interaction with their preceptors who are family medicine, general medicine or pediatrics physicians. Program size is significant with 320 volunteer physicians and 390 medical students at 250 office practices throughout metropolitan Chicago. The LPC program has a three-year curriculum, a faculty development program for preceptors, and an evaluation and dissemination program. Results are that one-on-one learning and teaching at many sites has led us to examine the relationship and level of engagement between the student and preceptor as an outstanding feature of the program.

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6 brochures for recruitment and faculty development

Body of Report

Project Overview.

How the project started. The project originated in 1991 at the University of Illinois at Chicago College of Medicine (UICCOM) as the shifting health care environment began to impact academic medical centers. The practice of medicine and the education of medical students was in early transition from subspecialty to general care of patients and from hospital to ambulatory settings. In 1991 medical educators puzzled over how to introduce the elements of primary care and general medical education into the medical schools. Few major medical schools had actually designed programs to teach students the elements of longitudinal primary care of patients and their families. This FIPSE project, therefore, was timely and significant in that it supported the development of a Longitudinal Primary Care (LPC) Program for a large metropolitan medical school.

What happened? The project established the LPC program at UICCOM as a curriculum innovation and faculty development program that is now fully institutionalized. In the first year of medical school students are assigned to a preceptor with whom they interact one-to-one for three years. In Year 1 students attend a half-day session once a month with their preceptors and twice a month in Years 2 and 3. The preceptor is a primary care physician in family medicine, general medicine or pediatrics. Now in its fifth year, the LPC program has grown from a pilot program to three required courses with 350 volunteer primary care physicians, 370 medical students at 250 medical practice sites. We expect to add another 180 physician preceptors and at least 50 additional sites for the incoming class of 1996.

The LPC program has further established a faculty development program for preceptors, produced three curriculum documents, and an evaluation program and staff that are supported by the institution. The three-year FIPSE grant also attracted funding from the Chicago Community Trust ($398,000) and provided

the foundation for the LPC program to become a demonstration model for the Interdisciplinary Generalist Curriculum project that in 1995 was funded by the U.S. Department of Health and Human Services ($300,000). We published two papers in *Academic Medicine*, presented at 8 professional association meetings, and submitted two additional articles to professional journals. Recently we prepared a competitive proposal for the National Board of Medical Examiners to disseminate our evaluation methodology to medical school evaluators. Finally, the LPC program played an important role in the reformulation of the four-year medical school curriculum that at present is in preparation.

Who was served? The group served by the FIPSE project were the 400 (in 1997, 520) medical students who have completed the LPC program or who are in their first, second or third year of the program. From the first year of medical school, students experience the care of patients, see the correlation of basic sciences courses with clinical practice, and learn from their one-to-one interaction with their preceptors. One student's recent and unsolicited letter summarizes:

> "As my undergraduate medical education at UIC is coming to a close, I reflect upon my experiences with the LPC program, and realize how they have helped me shape my approach to interpersonal relationship with patients and my career goals... I hope that LPC will continue to be a shining model at UIC.

Purpose.

Problem addressed. Our project addressed the problem of the traditional curriculum and practices of medical schools. For decades, medical school faculty had educated students in hospital settings via a series of specialized, six or eight week medical clerkships or rotations. Students learned to care for patients for the short-term. Follow-up and return visits and care of patients was connected to hospitalized illness. Longitudinal, ambulatory and primary care of patients was unknown to students.

In 1991 managed care began to have significant effects on the academic medical centers. Managed care systems required less costly medical care, emphasis on prevention of disease and long-term care of patients in office settings. The practice of medicine experienced economic reform and the medical school

curriculum had to follow. But in academic medical centers, there were no general curriculum models to educate students nor to recruit and train volunteer community faculty for long-term care of patients and their families.

In 1991 and even today in 1995, a three-year primary care program for all students is a major institutional innovation. Not many medical schools are willing to engage in the time-consuming process of curriculum transformation. To restructure a curriculum for a longitudinal primary care program required fundamental changes in faculty perception, the medical school workforce, decisions of curriculum committees, the institutional commitment and dollars to support the recruitment of preceptors, and the daily management and the evaluation of the program.

Furthermore, faculty development for an innovative curriculum required urgent attention. Hundreds of volunteer physicians who were recruited had no training for student-centered learning. They expected to teach as they had been taught, and they assumed that the teaching of medical students was no different from when they attended medical school. We had to address the problem of how and what to teach medical students in primary care office settings where the student would learn from the preceptor for three years.

What we have learned about the problem to date. Thinking about the problems now, the issue of faculty development is even more significant than we considered originally. There is an enormous variation in preceptors' ability to comprehend and to teach the elements of the curriculum to their student. For example, the Year 2 curriculum focuses on the patient in the context of their community. Many preceptors have little or no grasp of the community aspects of medicine. They do not think in terms of the health status of the community, risk-factors or cultural aspects of patient care. Another example is that when challenged with teaching first-year medical students how to interview patients, preceptors acknowledge that they have cultivated habits of interviewing which could be improved. Under managed care, the effective interview and optimal doctor-patient communication is fast becoming the hallmark of good medical practice.

Since 1992 when this project was funded, health care reform has accelerated and even today, the

necessity for curriculum reform is critical. At present we define the problem as changing the dominant institutional knowledge of the medical school from subspecialty disciplines to those of general medical practice. Three years ago students were choosing subspecialty residencies and they structured their medical education accordingly. Today, in the rapidly changing environment of medical practice, there are cutbacks for subspecialty residency programs and students will not choose these residency programs as before. General physicians who practice primary care are needed for the national workforce, yet the medical school as an institution retains its devotion to subspecialty care through the type of faculty who are recruited and employed. Those who teach medical students the general practice of medicine are not full time faculty. The dilemma is that those who bear the knowledge for today's medical practice are not faculty who are in the medical school, but physicians who are in the community. In short, the dominant knowledge base of the institution has been called into question because of health care reform. For us, this FIPSE project highlights the necessity for a transformation of medical education.

Administrative pitfalls for replication of model. Consistent with the above observations on the institutional transformation of a medical school, the top administrators must support the project and the project must be part of a total and ongoing curriculum change. What happens often in medical schools is that an innovative program is begun by an individual or small group of educators. When these individuals go on to other pursuits or leave the institution, the project fades. A project of this size and scope must have full institutionalization as the number one priority, and this priority must be planned and implemented each year.

Background and Origins.

Origin of project prior to funding. The University of Illinois College of Medicine is one of the oldest and largest medical school in the U.S. with campuses in Chicago, Peoria, Rockford and Urbana. Three

hundred students are admitted each year. The Chicago campus where this FIPSE project occurred admits 180

students annually.

With regard to organizational policy, in 1991 as a result of three years of committee work and two faculty planning retreats, the UICCOM Curriculum Committee voted to establish and to implement the Longitudinal Primary Care program for Years 1-3 of the medical school curriculum. The principal goals of the LPC program were to provide students with patients for primary care for a three-year period. Students also needed to integrate basic sciences courses with clinical practice and to learn clinical problem solving skills. They were to be exposed also to the work of primary care physicians and other health and social service professionals in the communities. The program had no external support at the outset. However FIPSE funding paved the way for full implementation and faculty cooperation since there was grant support for the project.

The program began on a volunteer pilot basis for 56 students in 1991. In 1992 there were 80 students, and 128 students in 1993. In 1994 the program became a required course for all 180 incoming students. In 1995 we admitted the second cohort of 180 first-year students. The total number of students in the program is now 390. There are 320 preceptors at about 250 office practice sites. In September, 1996 with the incoming class of first-year students, the LPC program will be at maximum size with students in their first, second and third year of medical school.

The size of the program amazes not only faculty from other medical schools, but occasionally our project management team. There is no way that we can monitor the 250 or more sites throughout metropolitan Chicago. To standardize teaching and learning, we use the curriculum documents, the faculty development program, the plenary sessions and group meetings of the Interdisciplinary Generalist Curriculum project (see below), and an annual telephone survey of preceptors.

The problem of standardization of a program of this size was helped by two additional grants. We received $398,000 from the Chicago Community Trust to complement the FIPSE funding for faculty development which allowed us to conduct Curriculum Implementation workshops for preceptors in the community. The issue of standardization also motivated us to compete and win a prestigious contract, the

Interdisciplinary Generalist Curriculum project award funded by DHHS. As one of ten demonstration schools in the U.S., we will implement a two-year course to function as the anchor course for the LPC program. To date the total amount of external funding to implement the required three-year LPC program is $900,000.

Project Description.

The goal of the FIPSE project was to develop an infrastructure for a three-year LPC program in the College, a permanent LPC faculty development program, a training handbook for preceptors, a communications system for preceptors, and an evaluation protocol for the program. We also planned to set up an electronic communications system for the program.

1. Infrastructure for program. The infrastructure of the LPC program is set. The three-year program consists of three required courses for all medical students that have been approved by the UIC Vice Chancellor for Academic Affairs. The co-directors of the course are Annette Yonke, principal investigator for the FIPSE grant and Maurice Lemon MD, chair of the LPC curriculum sub-committee. The faculty development coordinator is Richard Foley, and the chair of the faculty development team is Joyce Smith MD. There are three curriculum documents for the course: *The Doctor and the Patient* (Year 1), *Doctor and Patient, Family and Community* (Year 2), and *The Doctor, the Patient and Continuous Care* (Year 3). These documents were developed by groups of faculty during the three years of funding. The curriculum provides a structure for students to learn and preceptors to teach in an office setting.

Upon completion of the FIPSE grant, staffing for the program will be supported by the College of Medicine. Our 1996-97 budget shows that the cost is $242,000 per year. The program will be supported by the Dean's office and the Department of Medical Education. The functions of the LPC program are recruitment of preceptors, day-to-day management, course implementation and maintenance, faculty development, program maintenance, evaluation and dissemination and grant-writing. The Dean's office activities have to do with implementation, communication and management of the program. The Department

of Medical Education focuses on content of curriculum and faculty development, evaluation, dissemination, and grant-writing.

2. The faculty development program is fully institutionalized. The structure of the program evolved during the period of FIPSE funding. In the preliminary stage we held informal meetings with preceptors to identify problems. In subsequent stages we planned and conducted workshops to introduce preceptors and to improve their teaching skills. These workshops were conducted at a central location here at the UIC campus, College of Medicine. In the most recent stage of the project, we decentralized the faculty development program and conducted workshops at 10 training sites that we established throughout metropolitan Chicago. All workshops are approved for Category I Continuing Medical Education credits of the American Medical Association and the American Academy of Family Practice.

Several courses of action were significant for the faculty development program: a) change in the location of sites for faculty development; b) the content of the program; and c) the preceptor trainers.

Change in site location was critical. The original workshops at the UIC campus were attended by preceptors at about a 35% rate. We experimented with various days of the week including Saturdays, hours of the day, and the length of workshops which were originally four hours. A 30% rate of attendance was not satisfactory for us, and we decided to decentralize the locations to eight of our hospital affiliates and to cut the length of the workshops to two and one-half hours. For the most part, the workshops were held in the early morning. By 1995, our attendance rate had increased to 58%.

Content of the faculty development program evolved. In 1992 we designed workshops on how to implement the curriculum. In 1993 based upon data from our preceptor survey, the faculty development team concluded that preceptors needed assistance with teaching medical interviewing skills and with providing effective feedback to students. To date, three workshops have been designed and tested. *Curriculum Implementation* introduces preceptors to the program goals and the use of the curriculum in their outpatient clinical settings. *Teaching Medical Interviewing in Primary Care* is designed to teach preceptors how to help

students learn effective patient interviewing. *Providing Effective Feedback and Supervision* assists physicians in providing formal feedback on a student's progress.

In addition, two self-instructional packages have been developed. Both will provide physicians with tools for better teaching. *The Use of Questions to Promote Problem-Solving* and *How to Teach Students to Become Self-Directed Learners* employ written materials and a pre- and post-test to confer CME credits.

The following summarizes the faculty development workshops for the LPC program from 1992-1995.

Curriculum Implementation	39 sessions	436 participants
Teaching Medical Interviewing	7 sessions	65 participants
Providing Effective Feedback	3 sessions	33 participants
Total	49 sessions	534 participants

Trainers of preceptors were peers. Who would train the large number of preceptors was an important issue. We were able to determine a successful course of action that will continue in the future. Our original plan was to hire external consultants such as physicians from the American Academy of Physicians and Patients to train our faculty development team. But the cost of their services was $15,000 for a three-day workshop. Already we knew that three days of training was not a workable solution for our preceptors who were busy with their medical practices, nor were we willing to pay the cost of external training. We therefore decided to identify a core group of our own 15 physicians and to prepare them to train other preceptors. We recruited the physician-trainers through a letter of invitation from the senior associate dean for undergraduate medical education. The preceptor trainers are now committed to the LPC faculty development program and they receive special recognition from the dean and from preceptor colleagues.

3. We developed two training handbooks for preceptor trainers for the first and second years of the program. These documents address the issue of standardization of curriculum and faculty development content for the program. We prepare our trainers through orientation workshops which teach them how to use the handbook. The content of the handbook includes a sample two-hour program, tips for effective instruction,

overheads, handouts and curriculum pages for the workshops, and instructions on how to teach the use of the attendance forms and professional behavior tool.

4. The communications system is one of the most challenging aspects of the LPC program. Our original idea was to develop an electronic system for communication with preceptors and students. We developed a prototype for exchange among students, preceptors and staff and a file server system for assessment. We were unsuccessful in our bid for grant support, but we continue to seek funding for this component of the program. We surveyed preceptors to find that only 20% were computer literate. Our students use e-mail sparingly, so there is much to be done in this area.

Meanwhile our method for communication with preceptors is via mail, telephone and faculty development meetings. We have instituted a quarterly newsletter, *News from the Longitudinal Primary Care Program*, now in its second year of publication. We announce all faculty development workshops and we send letters and materials to preceptors through first-class mail. Students are notified through their mailboxes. Postage and materials, including books for preceptors, amount to about $26,000 per year.

In January of each year we phone preceptors to see how the program is going for them and to assess their activity with students. To collect the information we use an instrument that we designed for this purpose. Our LPC Coordinator assumes responsibility for all preceptor matters and an administrative assistant attends to student needs that can be dealt with by phone. So far our method of communication has worked. In 1995 we published an invited article for *Academic Medicine*, Communication as an Essential Part of Program and Institutional Development. Nonetheless, we recognize that this form of communication is labor intensive and costly, and we continue to plan for an eventual electronic system.

5. The LPC evaluation program. In the three years of the project we developed and refined 10 instruments: Student Specialty Choice administered annually; Preceptor Motivation, every three years; Student Interaction with Preceptors, annually; Site Survey Information for new preceptors; Faculty Development Evaluation following each workshop; Telephone Survey for Preceptors, annually; Telephone survey for M3

preceptors; M1, M2 and M3 focus group instruments. The information has allowed us to make important decisions about shaping the LPC program. For example, two years of information from preceptors and students revealed that the M3 requirement of once a week attendance at the LPC site was too frequent for both students and preceptors. We put the results of these findings to the College Curriculum Committee. Now students attend the M3 sessions once every other week.

With the great dispersion of activity over the 250 sites and the variability of possibilities for learning experiences, we found we needed to conduct evaluation studies that would provide information about critical issues in the program such as students' interactions with preceptors, preceptors' motivation for teaching, the impact of practice sties on student learning, and most important, the characteristics of successful longitudinal preceptoring. We needed a program evaluation plan that would provide not only a solid foundation for measurement, but would include a data analysis method with the mathematical underpinnings to track and compare longitudinal data and to coordinate many sets of program data. We found what we needed in the Rasch model.

From the beginning of the program we have used evaluation information to detect areas in the curriculum that need attention. We track all students' attitudes about primary care and we examine student interaction and learning at the LPC site. We monitor and alleviate student and preceptor problems with the program and we evaluate preceptor motivations to participate in LPC. We use the results of these data to adjust our decisions about the program and to present significant findings to the LPC Primary Subcommittee and to the Curriculum Committee. For program outcomes we are interested in the specialty choice of students for primary care and the influences on these choices.

Our original data base for the LPC program was designed to store information only. As the program grew in size and daily management and our program evaluation needs became more complex, we recognized that a more sophisticated system was necessary. We re-built our data base using Paradox, a relational database system that allows us to manage complex relationships between students preceptors and sites by linking

information from multiple files. We are able now to track demographic and administrative information to manage efficiently the program, and for evaluation purposes, to investigate the interactions among variables that we have identified for our studies.

Evaluation/Project Results.

What students learned as a result of our project. The final results of student learning for the project will be evident in 1996 when the present cohort of 180 students who were required to participate in the LPC program for three years select a specialty for residency training. However, our preliminary outcome data which matched students who volunteered for and completed the program with those who did not, showed that LPC students chose primary care specialties more than their non-LPC counterparts. Moreover, these students reported that the LPC program or their LPC preceptor played a major role in their specialty choice.

To ascertain the characteristics and quality of teaching and learning in office settings from early outcomes, we examined the interaction of students with preceptors--the contextual variables. We are finding that evaluation of learning in diverse settings requires an expanded definition of what constitutes a satisfactory experience for students. The experience needs to be evaluated from the standpoint of the curriculum authors to get at the typical course evaluation of learning outcomes. But it must also look at the student's experience and what elements the unique setting and the unique student and preceptor bring to the mix.

What we can say at present about student learning. In the office setting, first and second year students are learning: a) how to interact with patients; b) something new every session; c) how to think through problems; d) how to increase their responsibility; e) how to examine patients on their own.

We compared 101 first and second year on students for the level of engagement with preceptors. Some important findings for the faculty development component of the program were the following:

a. 100 percent of students in both years say that their preceptors are willing to take time for students, to train and teach, to be accessible and to give feedback.

b. Only 25% of students said that their relationship includes discussing issues important in student life.

c. Second-year students more often interviewed and examined patients on their own and were able more often to see the same patient more than once. In this expanded view, the contribution of a preceptor's individuality cannot be overlooked.

We understand now that the student-preceptor relationship is established in the first year and seems to remain consistent with our set of survey items. Stemming from this analysis is a theory of mentorship that for some students, develops through stages of instruction, affiliation, and finally, collegiality. The implications of these findings are important for our future faculty development program.

What was examined for this project and how? Formative evaluation has been the focus of the LPC program's first four years. In the beginning there was qualitative evaluation--personal interviews and small group meetings--that shaped the LPC program with feedback from students and preceptors. As the initial kinks were worked out and the numbers of students and preceptors grew, quantitative evaluation--in the form of statistically analyzed survey questionnaires--was developed. Despite this change, we have not lost sight of the benefits of verbal exchange and we continue to conduct student and preceptor interviews.

Students perception, attitudes, behaviors and specialty choices are tracked from year to year to evaluate trends for specialty choice and for interaction with preceptors. Preceptors' motivations, perceptions and experiences are tracked as well. For these surveys we use the Rasch model of analysis. We also collect information from preceptors sites, telephone interviews with preceptors, and focus groups with both first and second year medical students.

Data summary. We report two categories of data: primary care specialty choice and preceptor motivation.

a. Year 1 specialty choice data for the first class of 180 students for whom the LPC program was required shows that only 33 students (16%) claimed they had decided on a specialty

choice in their first year.

b. Of these, only 12 (37%) claim they have decided on a primary care specialty of family practice, general pediatrics, medicine-pediatrics combined, or general internal medicine.

c. We conclude that first-year students are open to decisions about residency training. These students are now in their second year. We will survey them in the spring of 1996 and again in 1997. We expect that the numbers who plan to select a primary care specialty for residency training will increase. At that time we will be able to link the program data to the final choice of specialty and to declare the ultimate success of the LPC program. Meanwhile, we recognize the potential influence of preceptors on student choice of specialty.

With regard to preceptor motivation for teaching in the LPC program, we found the following to be strong motivating factors. The success of the project is based upon our preceptors' wish to teach medical students and to contribute to the development of young professionals. Physicians also want to give to others what they received from medicine. More than 75% hoped to improve their teaching ability, to develop themselves professionally, and to encourage the students to choose their specialty. What was unimportant was being associated with a university, presenting at professional meetings, writing grants and publishing papers, and advancing their own clinical academic status. We concluded that these physicians are fundamentally different from the traditional academic physician faculties of the medical school. We attribute the success of this project to the primary care physicians who are volunteer teachers for the program.

Plans for Continuation and Dissemination.

The overall program. Our plans for continuation of the LPC program are firm. The program is established as a required component of the medical school curriculum with support from the administration. The major step we have taken is to negotiate a budget and staff to finance the LPC program for the future. The LPC program has become an essential component of The Essentials of Clinical Medicine, the new two-year

medical school curriculum which begins in September, 1996. At present we are completing the final stage of planning for Year 3 of the LPC curriculum, a decisive year for students who will be learning in their preceptors' offices and in the hospital.

Faculty development. Our faculty development program is integral to the LPC program. We will continue to conduct workshops for curriculum implementation, teaching interviewing skills, feedback and supervision. In the spring we will test a self-instructional package, and we are designing another to be tested in 1997. Also for 1997, we are planning additional workshops for teaching problem-solving in office settings and for effective methods of preceptoring. All workshops and instructional packages are to be offered for CME credit.

Evaluation. Our evaluation program continues also. In 1996 and 1997 we will continue to determine the trends of students' experiences in the LPC program, to evaluate preceptors' experience with students, and to assess our faculty development program. We will arrive at important conclusions about student choice of primary care specialties and the impact of the LPC program on these choices. We will also investigate the influence of the preceptors' sites on student learning and their choice of specialty. We will continue to explore the quality of student and preceptor engagement in learning for the ambulatory setting. From our evaluation studies, we expect to make important decisions about the extent to which the first year of the LPC program predicts the student-preceptor relationship, learning and choice of specialty for the subsequent years.

Dissemination. Our dissemination activities began in 1993 and will continue. For the academic medical community, we published two papers and held 10 presentations at national meetings of the Association of American Medical College, Society for Teachers of Family Medicine and Society for General Internal Medicine. (See Appendix). Our evaluation data will provide opportunity for continuation of this track record for several years. In addition, we plan to conduct an invited conference on longitudinal teaching and learning in primary care settings.

For the community at large, the program has been featured in alumni publications, the campus

newspaper, and in local newspaper publications within the Chicago community. We also participated in a TV production about medical schools' adaptation to health care reform.

For the future, we plan to broaden our dissemination efforts by involving many more preceptors from family medicine, general internal medicine and general pediatrics. We will assist them to prepare exhibits, proposals, and papers for their professional association meetings. Through this effort, the results of the program will be spread to a wide audience of primary care physician educators.

Summary and Conclusions.

Insights gained from this grant activity are that for a program of this size and scope, we must decentralize and use our students who have been successful in the program. We have moved in that direction by establishing a group of students who help us implement the various components of the program including faculty development activities, communication with other students, and program planning and modification. We conduct faculty development meetings at hospital sites that utilize videotapes of students. In the future we expect to use the students to assist with electronic networking and to teach their preceptors to use e-mail for teaching. As the program developed, we realized that our students were a great resource, and we will make greater use of them in the subsequent stages of program development to advise, assist and later, to function as preceptors for the program.

Grantee Organization:	The University of Illinois at Chicago Department of Medical Education 986 CME, M/C 591 808 S. Wood Street Chicago, IL 60612
Grant Number:	116A20260
Project Dates:	10/01/92-8/31/95
Project Director:	Annette Yonke, PhD Department of Medical Education University of Illinois at Chicago 986 CME, M/C 591 808 S. Wood Street Chicago, IL 60612
FIPSE Program Officer:	Joan Staumanis Carolyn Forman
GRANT AWARD:	Year 1 81,239 Year 2 74,893 Year 3 72,388 TOTAL 228,520

Executive Summary

Title: **Faculty Development for an an Undergraduate Three-Year Primary Care Program**

Grantee: University of Illinois at Chicago
The Department of Medical Education
986 CME, M/C 591
808 S. Wood Street
Chicago, IL 60612

Director: Annette Yonke, PhD
(312) 996-5448

Project Overview

How the project started. The project originated in 1991 at the University of Illinois at Chicago College of Medicine (UICCOM) as the shifting health care environment began to impact academic medical centers. The practice of medicine and the education of medical students was in early transition from subspecialty to general patient care and from hospital to ambulatory settings. In 1991, few major medical schools had actually designed programs to teach students the elements of longitudinal primary care of patients and their families.

What happened? The FIPSE project established the Longitudinal Primary Care (LPC) program at UICCOM as a curriculum innovation and faculty development program that is now fully institutionalized. In the first year of medical school, students are assigned to a preceptor with whom they interact one-to-one for three years. In Year 1, students attend a half-day session once a month with their preceptors and, in Years 2 and 3, a half-day session twice a month. The preceptor is a primary care physician in family medicine, general medicine or pediatrics. Now in its fifth year, the LPC program has grown from a 56-student volunteer pilot program to a required three courses covering the first, second and third years. With numbers now at 320 volunteer primary care physicians and 390 medical students at 250 medical practice sites, we expect to add another 180 physician preceptors and at least 50 additional sites for the incoming class of 1996. Since its inception, the LPC program not only has established a faculty development program for preceptors and an evaluation program and staff that is supported by the institution, but has produced three LPC curriculum documents.

The three-year FIPSE grant also attracted funding from the Chicago Community Trust ($398,000) and provided the foundation for the LPC program to become a demonstration model for the Interdisciplinary Generalist Curriculum project that in 1995 was funded by the U.S. Department of Health and Human Services ($300,000). We published two papers in *Academic Medicine*, presented at 8 professional association meetings, and submitted two additional articles to professional journals. Recently we prepared a competitive proposal for the National Board of Medical Examiners to disseminate our evaluation methodology to medical school evaluators. Finally, the LPC program is playing an important role in the reformulation of the four-year medical school curriculum that, at present, is in preparation.

Purpose

Our project addressed the problem of the traditional curriculum and practices of medical schools, in which students were educated in hospital settings by sub specialist physicians. Students learned to care for patients for the short-term. Follow-up and return visits and patient care were connected to hospitalized illness.

Longitudinal, ambulatory and primary care of patients were unknown to students. For us, this FIPSE project highlighted the necessity for a transformation of medical education. In 1991, managed care began to have significant effects on the academic medical centers. Medical practice experienced economic reform and the medical school curriculum had to follow. But in academic medical centers, there were no general curriculum models to educate students nor to recruit and train volunteer community faculty for long-term care of patients and their families. In short, the dominant knowledge base of the institution had been called into question because of health care reform.

We entered into this project understanding that, because of its size and scope, full institutionalization must be the number one priority, and this priority must be planned and implemented each year. To restructure a curriculum for a longitudinal primary care program required fundamental changes in faculty perception, the medical school work force, decisions of curriculum committees, the institutional commitment and dollars to support the recruitment of preceptors, and the daily management and the evaluation of the program.

Background and Origins

The Chicago campus of The University of Illinois College of Medicine admits 180 students annually. In 1994, after a three-year pilot stage, the Longitudinal Primary Care program became a required course for all 180 incoming students. The principal goals of the LPC program were to provide students with patients for primary care for a three-year period. Students also needed to integrate basic sciences courses with clinical practice and to learn clinical problem-solving skills. They also were to be exposed to the work of primary care physicians and other health and social service professionals in the communities.

The program had no external support at the outset. FIPSE funding, however, paved the way for full implementation and faculty cooperation with grant support for the project. In addition, we received $398,000 from the Chicago Community Trust to complement the FIPSE funding for faculty development which allowed us to conduct Curriculum Implementation workshops for preceptors in the community. We also won a prestigious contract, the Interdisciplinary Generalist Curriculum project award funded by HRSA. As one of ten demonstration schools in the U.S., we will implement a two-year course to function as the anchor course for the LPC program. To date, the total amount of external funding to implement the required three-year LPC program is $900,000.

Project Description

The goal of the FIPSE project was to develop an infrastructure for a three-year LPC program in the College, a permanent LPC faculty development program, a training handbook for preceptors, a communications system for preceptors, and an evaluation protocol for the program.

The infrastructure of the LPC program now is set with a three-year program consisting of three required courses for all medical students that has been approved by the UIC Vice Chancellor for Academic Affairs. Upon completion of the FIPSE grant, staffing for the program will be supported by the College of Medicine.

The faculty development program is fully institutionalized, with Continuing Medical Education accredited workshops held at decentralized training sites, trainers who are preceptors themselves, two handbooks for trainers, and three courses: *Curriculum Implementation*, *Teaching Medical Interviewing in Primary Care*, and *Providing Effective Feedback and Supervision*. In addition, two self-instructional packages with CME credit have been developed: *The Use of Questions to Promote Problem-Solving* and *How to Teach Students to Become Self-Directed Learners*. To date, 49 faculty development workshops have been conducted for 534 participants.

Communication with preceptors is via mail, telephone, a quarterly newsletter and faculty development workshops. Initial plans to provide an electronic communication system was stalled by a rejected bid for grant funding and the finding that very few preceptors are computer literate.

In developing the program evaluation protocol we have developed and refined 10 instruments: Student Specialty Choice, administered annually; Preceptor Motivation, every three years; Student Experience at the LPC Site, annually; Site Survey Information for new preceptors; Faculty Development Evaluation following each workshop; Telephone Survey for Monitoring all Preceptors, annually; Telephone Survey for Debriefing M3 Preceptors; and M1, M2 and M3 focus group instruments. We chose a log-linear probability model, called Rasch, as our statistical data analysis method. We also rebuilt our data base using Paradox, a relational database system that allows us to track demographic and administrative information.

Evaluation Results

While formative evaluation has been the overriding focus of the program to date, greater understanding of the uniqueness of one-on-one learning and teaching in a wide variety of situations is leading us to probe more deeply into the relationships and learning students experience. Overall, we have found volunteer students enjoy a mentor-like relationship with their preceptors that starts in the first year, and preceptors say they volunteer for altruistic reasons. Evaluation of preceptors' practice site characteristics and careful monitoring of both the preceptor and the student uncovers potential problem relationships that are resolved by program staff.

Summary and Conclusions

This FIPSE project was timely and significant in that it supported the development of a Longitudinal Primary Care Program for a large metropolitan medical school. The most significant indicator of its success in the medical school is the fact that the program has become an integral part of the institution. The most profound indicator of its success, however, lies in the words of students whose experiences have given them a deeper understanding of patients as human beings.

Body of Report

Project Overview.

How the project started. The project originated in 1991 at the University of Illinois at Chicago College of Medicine (UICCOM) as the shifting health care environment began to impact academic medical centers. The practice of medicine and the education of medical students was in early transition from subspecialty to general care of patients and from hospital to ambulatory settings. In 1991 medical educators puzzled over how to introduce the elements of primary care and general medical education into the medical schools. Few major medical schools had actually designed programs to teach students the elements of longitudinal primary care of patients and their families. This FIPSE project, therefore, was timely and significant in that it supported the development of a Longitudinal Primary Care (LPC) Program for a large metropolitan medical school.

What happened? The project established the LPC program at UICCOM as a curriculum innovation and faculty development program that is now fully institutionalized. In the first year of medical school students are assigned to a preceptor with whom they interact one-to-one for three years. In Year 1 students attend a half-day session once a month with their preceptors and twice a month in Years 2 and 3. The preceptor is a primary care physician in family medicine, general medicine or pediatrics. Now in its fifth year, the LPC program has grown from a pilot program to three required courses with 350 volunteer primary care physicians, 370 medical students at 250 medical practice sites. We expect to add another 180 physician preceptors and at least 50 additional sites for the incoming class of 1996.

The LPC program has further established a faculty development program for preceptors, produced three curriculum documents, and an evaluation program and staff that are supported by the institution. The three-year FIPSE grant also attracted funding from the Chicago Community Trust ($398,000) and provided

the foundation for the LPC program to become a demonstration model for the Interdisciplinary Generalist Curriculum project that in 1995 was funded by the U.S. Department of Health and Human Services ($300,000). We published two papers in *Academic Medicine*, presented at 8 professional association meetings, and submitted two additional articles to professional journals. Recently we prepared a competitive proposal for the National Board of Medical Examiners to disseminate our evaluation methodology to medical school evaluators. Finally, the LPC program played an important role in the reformulation of the four-year medical school curriculum that at present is in preparation.

Who was served? The group served by the FIPSE project were the 400 (in 1997, 520) medical students who have completed the LPC program or who are in their first, second or third year of the program. From the first year of medical school, students experience the care of patients, see the correlation of basic sciences courses with clinical practice, and learn from their one-to-one interaction with their preceptors. One student's recent and unsolicited letter summarizes:

> "As my undergraduate medical education at UIC is coming to a close, I reflect upon my experiences with the LPC program, and realize how they have helped me shape my approach to interpersonal relationship with patients and my career goals... I hope that LPC will continue to be a shining model at UIC.

Purpose.

Problem addressed. Our project addressed the problem of the traditional curriculum and practices of medical schools. For decades, medical school faculty had educated students in hospital settings via a series of specialized, six or eight week medical clerkships or rotations. Students learned to care for patients for the short-term. Follow-up and return visits and care of patients was connected to hospitalized illness. Longitudinal, ambulatory and primary care of patients was unknown to students.

In 1991 managed care began to have significant effects on the academic medical centers. Managed care systems required less costly medical care, emphasis on prevention of disease and long-term care of patients in office settings. The practice of medicine experienced economic reform and the medical school

curriculum had to follow. But in academic medical centers, there were no general curriculum models to educate students nor to recruit and train volunteer community faculty for long-term care of patients and their families.

In 1991 and even today in 1995, a three-year primary care program for all students is a major institutional innovation. Not many medical schools are willing to engage in the time-consuming process of curriculum transformation. To restructure a curriculum for a longitudinal primary care program required fundamental changes in faculty perception, the medical school workforce, decisions of curriculum committees, the institutional commitment and dollars to support the recruitment of preceptors, and the daily management and the evaluation of the program.

Furthermore, faculty development for an innovative curriculum required urgent attention. Hundreds of volunteer physicians who were recruited had no training for student-centered learning. They expected to teach as they had been taught, and they assumed that the teaching of medical students was no different from when they attended medical school. We had to address the problem of how and what to teach medical students in primary care office settings where the student would learn from the preceptor for three years.

What we have learned about the problem to date. Thinking about the problems now, the issue of faculty development is even more significant than we considered originally. There is an enormous variation in preceptors' ability to comprehend and to teach the elements of the curriculum to their student. For example, the Year 2 curriculum focuses on the patient in the context of their community. Many preceptors have little or no grasp of the community aspects of medicine. They do not think in terms of the health status of the community, risk-factors or cultural aspects of patient care. Another example is that when challenged with teaching first-year medical students how to interview patients, preceptors acknowledge that they have cultivated habits of interviewing which could be improved. Under managed care, the effective interview and optimal doctor-patient communication is fast becoming the hallmark of good medical practice.

Since 1992 when this project was funded, health care reform has accelerated and even today, the

necessity for curriculum reform is critical. At present we define the problem as changing the dominant institutional knowledge of the medical school from subspecialty disciplines to those of general medical practice. Three years ago students were choosing subspecialty residencies and they structured their medical education accordingly. Today, in the rapidly changing environment of medical practice, there are cutbacks for subspecialty residency programs and students will not choose these residency programs as before. General physicians who practice primary care are needed for the national workforce, yet the medical school as an institution retains its devotion to subspecialty care through the type of faculty who are recruited and employed. Those who teach medical students the general practice of medicine are not full time faculty. The dilemma is that those who bear the knowledge for today's medical practice are not faculty who are in the medical school, but physicians who are in the community. In short, the dominant knowledge base of the institution has been called into question because of health care reform. For us, this FIPSE project highlights the necessity for a transformation of medical education.

Administrative pitfalls for replication of model. Consistent with the above observations on the institutional transformation of a medical school, the top administrators must support the project and the project must be part of a total and ongoing curriculum change. What happens often in medical schools is that an innovative program is begun by an individual or small group of educators. When these individuals go on to other pursuits or leave the institution, the project fades. A project of this size and scope must have full institutionalization as the number one priority, and this priority must be planned and implemented each year.

Background and Origins.

Origin of project prior to funding. The University of Illinois College of Medicine is one of the oldest and largest medical school in the U.S. with campuses in Chicago, Peoria, Rockford and Urbana. Three hundred students are admitted each year. The Chicago campus where this FIPSE project occurred admits 180

students annually.

With regard to organizational policy, in 1991 as a result of three years of committee work and two faculty planning retreats, the UICCOM Curriculum Committee voted to establish and to implement the Longitudinal Primary Care program for Years 1-3 of the medical school curriculum. The principal goals of the LPC program were to provide students with patients for primary care for a three-year period. Students also needed to integrate basic sciences courses with clinical practice and to learn clinical problem solving skills. They were to be exposed also to the work of primary care physicians and other health and social service professionals in the communities. The program had no external support at the outset. However FIPSE funding paved the way for full implementation and faculty cooperation since there was grant support for the project.

The program began on a volunteer pilot basis for 56 students in 1991. In 1992 there were 80 students, and 128 students in 1993. In 1994 the program became a required course for all 180 incoming students. In 1995 we admitted the second cohort of 180 first-year students. The total number of students in the program is now 390. There are 320 preceptors at about 250 office practice sites. In September, 1996 with the incoming class of first-year students, the LPC program will be at maximum size with students in their first, second and third year of medical school.

The size of the program amazes not only faculty from other medical schools, but occasionally our project management team. There is no way that we can monitor the 250 or more sites throughout metropolitan Chicago. To standardize teaching and learning, we use the curriculum documents, the faculty development program, the plenary sessions and group meetings of the Interdisciplinary Generalist Curriculum project (see below), and an annual telephone survey of preceptors.

The problem of standardization of a program of this size was helped by two additional grants. We received $398,000 from the Chicago Community Trust to complement the FIPSE funding for faculty development which allowed us to conduct Curriculum Implementation workshops for preceptors in the community. The issue of standardization also motivated us to compete and win a prestigious contract, the

Interdisciplinary Generalist Curriculum project award funded by DHHS. As one of ten demonstration schools in the U.S., we will implement a two-year course to function as the anchor course for the LPC program. To date the total amount of external funding to implement the required three-year LPC program is $900,000.

Project Description.

The goal of the FIPSE project was to develop an infrastructure for a three-year LPC program in the College, a permanent LPC faculty development program, a training handbook for preceptors, a communications system for preceptors, and an evaluation protocol for the program. We also planned to set up an electronic communications system for the program.

1. Infrastructure for program. The infrastructure of the LPC program is set. The three-year program consists of three required courses for all medical students that have been approved by the UIC Vice Chancellor for Academic Affairs. The co-directors of the course are Annette Yonke, principal investigator for the FIPSE grant and Maurice Lemon MD, chair of the LPC curriculum sub-committee. The faculty development coordinator is Richard Foley, and the chair of the faculty development team is Joyce Smith MD. There are three curriculum documents for the course: *The Doctor and the Patient* (Year 1), *Doctor and Patient, Family and Community* (Year 2), and *The Doctor, the Patient and Continuous Care* (Year 3). These documents were developed by groups of faculty during the three years of funding. The curriculum provides a structure for students to learn and preceptors to teach in an office setting.

Upon completion of the FIPSE grant, staffing for the program will be supported by the College of Medicine. Our 1996-97 budget shows that the cost is $242,000 per year. The program will be supported by the Dean's office and the Department of Medical Education. The functions of the LPC program are recruitment of preceptors, day-to-day management, course implementation and maintenance, faculty development, program maintenance, evaluation and dissemination and grant-writing. The Dean's office activities have to do with implementation, communication and management of the program. The Department

of Medical Education focuses on content of curriculum and faculty development, evaluation, dissemination, and grant-writing.

2. The faculty development program is fully institutionalized. The structure of the program evolved during the period of FIPSE funding. In the preliminary stage we held informal meetings with preceptors to identify problems. In subsequent stages we planned and conducted workshops to introduce preceptors and to improve their teaching skills. These workshops were conducted at a central location here at the UIC campus, College of Medicine. In the most recent stage of the project, we decentralized the faculty development program and conducted workshops at 10 training sites that we established throughout metropolitan Chicago. All workshops are approved for Category I Continuing Medical Education credits of the American Medical Association and the American Academy of Family Practice.

Several courses of action were significant for the faculty development program: a) change in the location of sites for faculty development; b) the content of the program; and c) the preceptor trainers.

Change in site location was critical. The original workshops at the UIC campus were attended by preceptors at about a 35% rate. We experimented with various days of the week including Saturdays, hours of the day, and the length of workshops which were originally four hours. A 30% rate of attendance was not satisfactory for us, and we decided to decentralize the locations to eight of our hospital affiliates and to cut the length of the workshops to two and one-half hours. For the most part, the workshops were held in the early morning. By 1995, our attendance rate had increased to 58%.

Content of the faculty development program evolved. In 1992 we designed workshops on how to implement the curriculum. In 1993 based upon data from our preceptor survey, the faculty development team concluded that preceptors needed assistance with teaching medical interviewing skills and with providing effective feedback to students. To date, three workshops have been designed and tested. *Curriculum Implementation* introduces preceptors to the program goals and the use of the curriculum in their outpatient clinical settings. *Teaching Medical Interviewing in Primary Care* is designed to teach preceptors how to help

students learn effective patient interviewing. *Providing Effective Feedback and Supervision* assists physicians in providing formal feedback on a student's progress.

In addition, two self-instructional packages have been developed. Both will provide physicians with tools for better teaching. *The Use of Questions to Promote Problem-Solving* and *How to Teach Students to Become Self-Directed Learners* employ written materials and a pre- and post-test to confer CME credits. The following summarizes the faculty development workshops for the LPC program from 1992-1995.

Curriculum Implementation	39 sessions	436 participants
Teaching Medical Interviewing	7 sessions	65 participants
Providing Effective Feedback	3 sessions	33 participants
Total	49 sessions	534 participants

Trainers of preceptors were peers. Who would train the large number of preceptors was an important issue. We were able to determine a successful course of action that will continue in the future. Our original plan was to hire external consultants such as physicians from the American Academy of Physicians and Patients to train our faculty development team. But the cost of their services was $15,000 for a three-day workshop. Already we knew that three days of training was not a workable solution for our preceptors who were busy with their medical practices, nor were we willing to pay the cost of external training. We therefore decided to identify a core group of our own 15 physicians and to prepare them to train other preceptors. We recruited the physician-trainers through a letter of invitation from the senior associate dean for undergraduate medical education. The preceptor trainers are now committed to the LPC faculty development program and they receive special recognition from the dean and from preceptor colleagues.

3. We developed two training handbooks for preceptor trainers for the first and second years of the program. These documents address the issue of standardization of curriculum and faculty development content for the program. We prepare our trainers through orientation workshops which teach them how to use the handbook. The content of the handbook includes a sample two-hour program, tips for effective instruction,

overheads; handouts and curriculum pages for the workshops, and instructions on how to teach the use of the attendance forms and professional behavior tool.

4. The communications system is one of the most challenging aspects of the LPC program. Our original idea was to develop an electronic system for communication with preceptors and students. We developed a prototype for exchange among students, preceptors and staff and a file server system for assessment. We were unsuccessful in our bid for grant support, but we continue to seek funding for this component of the program. We surveyed preceptors to find that only 20% were computer literate. Our students use e-mail sparingly, so there is much to be done in this area.

Meanwhile our method for communication with preceptors is via mail, telephone and faculty development meetings. We have instituted a quarterly newsletter, *News from the Longitudinal Primary Care Program*, now in its second year of publication. We announce all faculty development workshops and we send letters and materials to preceptors through first-class mail. Students are notified through their mailboxes. Postage and materials, including books for preceptors, amount to about $26,000 per year.

In January of each year we phone preceptors to see how the program is going for them and to assess their activity with students. To collect the information we use an instrument that we designed for this purpose. Our LPC Coordinator assumes responsibility for all preceptor matters and an administrative assistant attends to student needs that can be dealt with by phone. So far our method of communication has worked. In 1995 we published an invited article for *Academic Medicine*, Communication as an Essential Part of Program and Institutional Development. Nonetheless, we recognize that this form of communication is labor intensive and costly, and we continue to plan for an eventual electronic system.

5. The LPC evaluation program. In the three years of the project we developed and refined 10 instruments: Student Specialty Choice administered annually; Preceptor Motivation, every three years; Student Interaction with Preceptors, annually; Site Survey Information for new preceptors; Faculty Development Evaluation following each workshop; Telephone Survey for Preceptors, annually; Telephone survey for M3

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preceptors; M1, M2 and M3 focus group instruments. The information has allowed us to make important decisions about shaping the LPC program. For example, two years of information from preceptors and students revealed that the M3 requirement of once a week attendance at the LPC site was too frequent for both students and preceptors. We put the results of these findings to the College Curriculum Committee. Now students attend the M3 sessions once every other week.

With the great dispersion of activity over the 250 sites and the variability of possibilities for learning experiences, we found we needed to conduct evaluation studies that would provide information about critical issues in the program such as students' interactions with preceptors, preceptors' motivation for teaching, the impact of practice sties on student learning, and most important, the characteristics of successful longitudinal preceptoring. We needed a program evaluation plan that would provide not only a solid foundation for measurement, but would include a data analysis method with the mathematical underpinnings to track and compare longitudinal data and to coordinate many sets of program data. We found what we needed in the Rasch model.

From the beginning of the program we have used evaluation information to detect areas in the curriculum that need attention. We track all students' attitudes about primary care and we examine student interaction and learning at the LPC site. We monitor and alleviate student and preceptor problems with the program and we evaluate preceptor motivations to participate in LPC. We use the results of these data to adjust our decisions about the program and to present significant findings to the LPC Primary Subcommittee and to the Curriculum Committee. For program outcomes we are interested in the specialty choice of students for primary care and the influences on these choices.

Our original data base for the LPC program was designed to store information only. As the program grew in size and daily management and our program evaluation needs became more complex, we recognized that a more sophisticated system was necessary. We re-built our data base using Paradox, a relational database system that allows us to manage complex relationships between students preceptors and sites by linking

information from multiple files. We are able now to track demographic and administrative information to manage efficiently the program, and for evaluation purposes, to investigate the interactions among variables that we have identified for our studies.

Evaluation/Project Results.

What students learned as a result of our project. The final results of student learning for the project will be evident in 1996 when the present cohort of 180 students who were required to participate in the LPC program for three years select a specialty for residency training. However, our preliminary outcome data which matched students who volunteered for and completed the program with those who did not, showed that LPC students chose primary care specialties more than their non-LPC counterparts. Moreover, these students reported that the LPC program or their LPC preceptor played a major role in their specialty choice.

To ascertain the characteristics and quality of teaching and learning in office settings from early outcomes, we examined the interaction of students with preceptors--the contextual variables. We are finding that evaluation of learning in diverse settings requires an expanded definition of what constitutes a satisfactory experience for students. The experience needs to be evaluated from the standpoint of the curriculum authors to get at the typical course evaluation of learning outcomes. But it must also look at the student's experience and what elements the unique setting and the unique student and preceptor bring to the mix.

What we can say at present about student learning. In the office setting, first and second year students are learning: a) how to interact with patients; b) something new every session; c) how to think through problems; d) how to increase their responsibility; e) how to examine patients on their own.

We compared 101 first and second year on students for the level of engagement with preceptors. Some important findings for the faculty development component of the program were the following:

a. 100 percent of students in both years say that their preceptors are willing to take time for students, to train and teach, to be accessible and to give feedback.

b. Only 25% of students said that their relationship includes discussing issues important in student life.

c. Second-year students more often interviewed and examined patients on their own and were able more often to see the same patient more than once. In this expanded view, the contribution of a preceptor's individuality cannot be overlooked.

We understand now that the student-preceptor relationship is established in the first year and seems to remain consistent with our set of survey items. Stemming from this analysis is a theory of mentorship that for some students, develops through stages of instruction, affiliation, and finally, collegiality. The implications of these findings are important for our future faculty development program.

What was examined for this project and how? Formative evaluation has been the focus of the LPC program's first four years. In the beginning there was qualitative evaluation--personal interviews and small group meetings--that shaped the LPC program with feedback from students and preceptors. As the initial kinks were worked out and the numbers of students and preceptors grew, quantitative evaluation--in the form of statistically analyzed survey questionnaires--was developed. Despite this change, we have not lost sight of the benefits of verbal exchange and we continue to conduct student and preceptor interviews.

Students perception, attitudes, behaviors and specialty choices are tracked from year to year to evaluate trends for specialty choice and for interaction with preceptors. Preceptors' motivations, perceptions and experiences are tracked as well. For these surveys we use the Rasch model of analysis. We also collect information from preceptors sites, telephone interviews with preceptors, and focus groups with both first and second year medical students.

Data summary. We report two categories of data: primary care specialty choice and preceptor motivation.

a. Year 1 specialty choice data for the first class of 180 students for whom the LPC program was required shows that only 33 students (16%) claimed they had decided on a specialty

choice in their first year.

b. Of these, only 12 (37%) claim they have decided on a primary care specialty of family practice, general pediatrics, medicine-pediatrics combined, or general internal medicine.

c. We conclude that first-year students are open to decisions about residency training. These students are now in their second year. We will survey them in the spring of 1996 and again in 1997. We expect that the numbers who plan to select a primary care specialty for residency training will increase. At that time we will be able to link the program data to the final choice of specialty and to declare the ultimate success of the LPC program. Meanwhile, we recognize the potential influence of preceptors on student choice of specialty.

With regard to preceptor motivation for teaching in the LPC program, we found the following to be strong motivating factors. The success of the project is based upon our preceptors' wish to teach medical students and to contribute to the development of young professionals. Physicians also want to give to others what they received from medicine. More than 75% hoped to improve their teaching ability, to develop themselves professionally, and to encourage the students to choose their specialty. What was unimportant was being associated with a university, presenting at professional meetings, writing grants and publishing papers, and advancing their own clinical academic status. We concluded that these physicians are fundamentally different from the traditional academic physician faculties of the medical school. We attribute the success of this project to the primary care physicians who are volunteer teachers for the program.

Plans for Continuation and Dissemination.

The overall program. Our plans for continuation of the LPC program are firm. The program is established as a required component of the medical school curriculum with support from the administration. The major step we have taken is to negotiate a budget and staff to finance the LPC program for the future. The LPC program has become an essential component of The Essentials of Clinical Medicine, the new two-year

medical school curriculum which begins in September, 1996. At present we are completing the final stage of planning for Year 3 of the LPC curriculum, a decisive year for students who will be learning in their preceptors' offices and in the hospital.

Faculty development. Our faculty development program is integral to the LPC program. We will continue to conduct workshops for curriculum implementation, teaching interviewing skills, feedback and supervision. In the spring we will test a self-instructional package, and we are designing another to be tested in 1997. Also for 1997, we are planning additional workshops for teaching problem-solving in office settings and for effective methods of preceptoring. All workshops and instructional packages are to be offered for CME credit.

Evaluation. Our evaluation program continues also. In 1996 and 1997 we will continue to determine the trends of students' experiences in the LPC program, to evaluate preceptors' experience with students, and to assess our faculty development program. We will arrive at important conclusions about student choice of primary care specialties and the impact of the LPC program on these choices. We will also investigate the influence of the preceptors' sites on student learning and their choice of specialty. We will continue to explore the quality of student and preceptor engagement in learning for the ambulatory setting. From our evaluation studies, we expect to make important decisions about the extent to which the first year of the LPC program predicts the student-preceptor relationship, learning and choice of specialty for the subsequent years.

Dissemination. Our dissemination activities began in 1993 and will continue. For the academic medical community, we published two papers and held 10 presentations at national meetings of the Association of American Medical College, Society for Teachers of Family Medicine and Society for General Internal Medicine. (See Appendix). Our evaluation data will provide opportunity for continuation of this track record for several years. In addition, we plan to conduct an invited conference on longitudinal teaching and learning in primary care settings.

For the community at large, the program has been featured in alumni publications, the campus

newspaper, and in local newspaper publications within the Chicago community. We also participated in a TV production about medical schools' adaptation to health care reform.

For the future, we plan to broaden our dissemination efforts by involving many more preceptors from family medicine, general internal medicine and general pediatrics. We will assist them to prepare exhibits, proposals, and papers for their professional association meetings. Through this effort, the results of the program will be spread to a wide audience of primary care physician educators.

Summary and Conclusions.

Insights gained from this grant activity are that for a program of this size and scope, we must decentralize and use our students who have been successful in the program. We have moved in that direction by establishing a group of students who help us implement the various components of the program including faculty development activities, communication with other students, and program planning and modification. We conduct faculty development meetings at hospital sites that utilize videotapes of students. In the future we expect to use the students to assist with electronic networking and to teach their preceptors to use e-mail for teaching. As the program developed, we realized that our students were a great resource, and we will make greater use of them in the subsequent stages of program development to advise, assist and later, to function as preceptors for the program.

APPENDIX I

The Rasch Model

THE RASCH MODEL AND ITS FEATURES:

The Rasch model is a computer-based log-linear probability model that, essentially, is an efficient bookkeeping tool for quantitative data analysis. Rasch analysis provides person measures for tracking the performance of individual respondents. It also calibrates the survey or test items on a hierarchical difficulty scale that places items in relation to one another, from easiest (or most often experienced) to hardest (or least often experienced).

Generalization and objectivity are the hallmarks of Rasch measurement's properties:

Person and item separation: Mathematical separation of persons and items creating objectivity.

1) In contrast to traditional raw scoring methods, the difficulty of the items is not dependent on the peculiarities of a particular set of respondents. Person measures, as well, are not dependent on the particular set of items. Person performance, therefore, is not linked subjectively to the difficulty of the test, and item difficulties are not linked subjectively to the performance of the respondents.

2) Generalization occurs when, after repeated trials, item difficulties and person measures stabilize into similar patterns.

Log-linearity: A transformation of curved, raw score data onto a straight line scale.

1) Both person measures and item difficulties are placed on the same linear scale, so that person performance is definable by the survey items.

2) Spacing of persons and items on a linear scale show how much difference occurs among items and among persons.

Probability: The odds that a person will succeed on (or agree with) a particular item.

1) Probabilistic measurement transforms respondents' performance from the vagaries and volatility of the immediate to the best estimated likelihood that responses will be true no matter what conditions prevail at the time of the test.

2) Decision-making for the future becomes possible by using probabilistic measures which are not bound in a past moment in time.

Statistical validity: Fit statistics for both item calibrations and person measures pinpoint poor item construction and erratic behavior in respondents.

APPENDIX II

Evaluation Instruments

Use the **BLUE** *answer sheet.*

LPC M-1 Student Survey

Required on the Answer Sheet:

1. Fill in your SOCIAL SECURITY NUMBER in the "Identification Number" Section.
2. In column K in "Special Codes," fill in the highest number of times you have seen the **same** patient.

Here are some students' statements about the LPC program.
Please indicate the response that describes your experience:

(1) Never (2) Occasionally (3) Fairly Often (4) Very Often

My preceptor:

1. is accessible to me.
2. shows interest in being a preceptor.
3. teaches me something in each session.
4. takes time to help me understand.
5. lets me examine patients on my own.
6. gives me flexibility in my learning activities.
7. lets me see patients more than once.
8. teaches me to think through problems.
9. discusses issues important in my student life.
10. gives me increasing responsibilities.
11. trains me in doctor-patient interaction.
12. gives me feedback.
13. lets me interview patients on my own.
14. uses curriculum booklet with me.
15. observes me interview patients.
16. explains how to make patient-care decisions.

In the LPC program, I learn:

17. to be more comfortable with patients.
18. about primary care.
19. about patients' non medical problems.
20. to participate in patient-care decisions.
21. to interact with other health care professionals.
22. about a career in primary care.
23. about patients' social community.
24. to relate class lectures to clinical experience.
25. to interact with patient's families.
26. about the business aspects of a physician's office.

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(1) Never (2) Occasionally (3) Fairly Often (4) Very Often

Being in the LPC program:

27. interferes with the quality of my other coursework.
28. conflicts with my class schedule.
29. infringes on my personal commitments.
30. causes me travel problems.
31. sends me places where I don't feel safe.
32. shows me I'm more interested in subspecialties.

The LPC Curriculum Booklet:

33. I use the curriculum booklet *(if Never skip to Question 39)*
34. helps me understand the LPC program goals.
35. applies to patients I see.
36. has readings that help me deal with patients.
37. suits my LPC site's activities.
38. is useful for learning on my own.

39. I do the readings.

40. LPC stimulates me to read patient-related medical literature.

41. My LPC site is (1) Off-campus (2) On-campus.

At my LPC site:

42. The patient load is (1) Not enough (2) Just right (3) Too much.

43. The patient variety is (1) Not enough (2) Just right.

Thank you for your time and effort in helping us make this the best program possible.

Use the Answer Sheet for this Page

REQUIRED:
- **Fill in your SOCIAL SECURITY NUMBER in the "Identification Number" Section.**
- **Fill in ONLY your SS# and the answers**
- **Do NOT FOLD the answer sheet**

Here are some things doctors say influenced their SPECIALTY choice.
Indicate the degree of influence each would have *on your choice of SPECIALTY*:

(1) None **(2) Some** **(3) Quite a lot** **(4) A great deal**

---

1. Not too demanding
2. Courses in subject matter
3. Income
4. Physicians I admire
5. Predictable work hours
6. Prestige
7. Intellectual content
8. Government health care reform
9. Encouragement from: faculty
10. residents
11. fellow students
12. Amount of educational debt
13. Opportunity for research
14. Lack of overcrowding
15. Ease of getting a residency
16. Fits my personality
17. Enjoyment of patient types
18. Minimum exposure to HIV-AIDS
19. My clerkship experiences
20. LPC Program

Here are some opinions about PRIMARY CARE PRACTICE.
Indicate *your* opinion about each statement.

(1) Strongly Disagree **(2) Disagree** **(3) Agree** **(4) Strongly Agree**

Primary care:

21. is not as intellectual as sub specialties
22. doesn't pay enough
23. requires too many unpredictable work hours
24. is not as challenging as sub specialties
25. demands too broad a knowledge base
26. is not as important as sub specialties
27. doesn't use technical skills enough
28. limits interesting research opportunities
29. relies too much on interpersonal skills

Primary care doctors experience:

30. too many routine patient problems
31. greater risk of HIV exposure
32. paperwork overload
33. tedious long-term patient care
34. little challenge in making diagnoses
35. too many kinds of patients
36. more stress than sub specialists
37. too much time on patients' personal problems
38. loss of status when referring patients to subspecialists
39. too much time educating patients
40. less respect in the medical world

To help us investigate electronic communication between students and the College,
indicate your experience about each statement.

---

41. **For me, getting access to a computer linked to the campus Academic Data Network (ADN) is:**

(1) Very hard (2) Fairly hard (3) Fairly easy (4)Very easy

42. **I use ADN *e-mail*:**

(1) Never (2) Occasionally (3) At least monthly (4) At least weekly (5) Daily

Thank you for your time. Your participation will help us immensely.

PRECEPTOR SURVEY

PART A.

Here are some preceptor statements about the LPC program.
Circle the response that describes your experience.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I became a preceptor to:				
1. teach medical students	SD	D	A	SA
2. be associated with a university	SD	D	A	SA
3. advance my clinical academic status	SD	D	A	SA
4. develop myself professionally	SD	D	A	SA
5. give others some of what I received from medicine	SD	D	A	SA
By precepting, I hope to:				
1. improve my teaching	SD	D	A	SA
2. write grants	SD	D	A	SA
3. write and publish papers	SD	D	A	SA
4. present my ideas at professional meetings	SD	D	A	SA
5. meet new colleagues	SD	D	A	SA
6. encourage students to choose my specialty	SD	D	A	SA
7. contribute to the development of young professionals	SD	D	A	SA
For students, the major aims of the LPC program should be to:				
1. improve interviewing skills	SD	D	A	SA
2. understand primary care	SD	D	A	SA
3. have a three-year apprenticeship	SD	D	A	SA
4. improve physical exam skills	SD	D	A	SA
5. increase awareness of community factors in health care	SD	D	A	SA
6. participate in the "real world" of medicine	SD	D	A	SA
7. acquire mentor role model	SD	D	A	SA
8. learn about: preventive care	SD	D	A	SA
chronic illness	SD	D	A	SA
seeing patients repeatedly	SD	D	A	SA
At this time, my *problems* with the program are:				
1. Being a preceptor demands too much time	SD	D	A	SA
2. My student is uncomfortable around patients	SD	D	A	SA

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At this time my *problems* with the program are:

3. Patients are uncomfortable around my student	SD	D	A	SA
4. The costs burden my practice	SD	D	A	SA
5. I'd like more contact with the College of Medicine	SD	D	A	SA
6. Clerkships undo what I teach in the LPC	SD	D	A	SA
7. I need more training to teach: first-year students	SD	D	A	SA
second-year students	SD	D	A	SA
third-year students	SD	D	A	SA

PART B: Your experiences with curriculum topics and student attendance will help us assess how the LPC program is doing.

Listed below are elements of LPC course content.
Circle the level of emphasis you place on each with your student.

M-1

1. Patient-centered interviews	Not much	Somewhat	Quite a bit	Very much
2. Patients as partners	Not much	Somewhat	Quite a bit	Very much
3. Patients' experience of illness	Not much	Somewhat	Quite a bit	Very much
4. Cultural effects on doctor/patient communication	Not much	Somewhat	Quite a bit	Very much
5. Role of the family in health	Not much	Somewhat	Quite a bit	Very much

Other _____

M-2

1. Intermediate interviewing skills	Not much	Somewhat	Quite a bit	Very much
2. Risk assessment	Not much	Somewhat	Quite a bit	Very much
3. Visits to community-based agencies	Not much	Somewhat	Quite a bit	Very much
4. Health promotion and disease prevention	Not much	Somewhat	Quite a bit	Very much
5. Patients' stage of physical and emotional development	Not much	Somewhat	Quite a bit	Very much
6. Cultural factors and beliefs on health	Not much	Somewhat	Quite a bit	Very much
7. Understanding community health problems	Not much	Somewhat	Quite a bit	Very much
8. How to work with other health care professionals	Not much	Somewhat	Quite a bit	Very much
9. Visits to patients' homes	Not much	Somewhat	Quite a bit	Very much

Other _____

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M-3

1. Advanced interviewing techniques	Not much	Somewhat	Quite a bit	Very much
2. Advanced physical exam skills	Not much	Somewhat	Quite a bit	Very much
3. How to be a member of a patient-care team	Not much	Somewhat	Quite a bit	Very much

4. Visits to patients' homes	Not much	Somewhat	Quite a bit	Very much
5. Preventive medicine counseling	Not much	Somewhat	Quite a bit	Very much
6. Patient-care decision making	Not much	Somewhat	Quite a bit	Very much
7. Visits to community-based agencies	Not much	Somewhat	Quite a bit	Very much
8. Patient wellness education	Not much	Somewhat	Quite a bit	Very much
9. Risk assessment	Not much	Somewhat	Quite a bit	Very much
10. Students' continuity of care with patients	Not much	Somewhat	Quite a bit	Very much
11. Community issues and health	Not much	Somewhat	Quite a bit	Very much
12. Symptom presentation	Not much	Somewhat	Quite a bit	Very much
13. National ambulatory data as guide to patient problems	Not much	Somewhat	Quite a bit	Very much
14. Students' use of LPC journal/log	Not much	Somewhat	Quite a bit	Very much

Other _____

1. My student and I use the curriculum book	Never	Sometimes	Usually	Always

2. I think the LPC prescribed schedule for student sessions is

M-1 (once a month)	Not often enough	Just right	Too often
M-2 (every other week)	Not often enough	Just right	Too often
M-3 (every week)	Not often enough	Just right	Too often

3. Compared to the prescribed schedule, my student(s) attends LPC sessions

	(circle one)					
Student #1:	M1/ M2 /M3	Much less	Somewhat less	On schedule	Somewhat more	Much more
Student #2:	M1 /M2 /M3	Much less	Somewhat less	On schedule	Somewhat more	Much more

PART C. PLEASE TELL US ABOUT YOURSELF:

1. Your name _____

2. Year you finished residency 19___

3. Your specialty

___ family practice
___ internal medicine
___ pediatrics
___ medicine/pediatrics

4. For each, write in the number of <u>years</u> you have taught (at UIC or elsewhere):

___ medical students ___ residents

We are beginning to develop a pilot project for networking faculty, students and the dean's office. For this, we need information about preceptors' use of computers.

5. Do you *personally* use computers in your practice? No Yes

If so, for what?

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For what purposes do the office staff use computers?_____

For non UIC-based preceptors only, this section will assist the University of Illinois Hospitals (UIH) staff in learning about the needs of referring physicians.

1. Do you know <u>how</u> to refer patients to UIH? No Yes

2. *Before* being in the LPC program, did you refer your patients to UIH? No Yes

3. *Since* being in the LPC program, have you started referring, or increased your referrals, to UIH?

   Not at all Very little Somewhat Quite a bit

4. If you have referred patients to UIH, have you been satisfied with follow-up calls or letters? No Yes

   Please comment._____

Please write any comments on the back of this page. We appreciate your time in helping us.

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Longitudinal Primary Care Program

1994-5 Site Information Form

Please provide the following information on the site where you will work with a student:

1. **Your site:** Physician's Name _____

Name of Practice _____

Address _____

City _____

State _____ Zip code _____

Please provide your PREFERRED MAILING ADDRESS if different than the above:

Name _____

Address _____

City _____

State _____ Zip code _____

2. **Please check the one that describes your practice best:**

___ Hospital-based clinic
___ Satellite hospital outpatient center
___ Community health clinic *(circle one*: public, corporate, foundation or church)
___ Private practice (*circle one*: solo, group)
___ Managed care system
___ Combined private practice/managed care
___ Other _____

3. **Please provide as much of the following information as possible:**

State representative/district: _____/_____

State senator/district: _____/_____

For Chicago: Alderman/ward: _____/_____

For Suburbs: Mayor: _____

4. **Is your practice or practice site (according to Federal definition) designated as a:**

Medically Underserved Area (MUA)?	No	Yes
Health Professional Shortage Area (HPSA)?	No	Yes

5. **Is your site easily accessible by public transportation?** No Yes

Costs to park? _____

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6. **Please complete a profile of your practice:**

Total number of OFFICE VISITS per year: _____

Total number of HOME VISITS per year: _____

Patient age range: _____

Ethnic/racial mix (%) _____

Socio-economic status _____

Gender mix (*circle one*) random mix mostly female mostly male

Other characteristics _____

7. **Check all health professionals your LPC student will interact with:**

___ None
___ Nurse/Nurse practitioner
___ Social worker
___ Psychologist
___ Community health advocate
___ Nutritionist
___ Sub specialists
___ Other _____

8. **Are any special language(s) necessary for your practice?** No Yes

If so, which one(s) _____

9. **When are there four-hour blocks of time during which your student can see patients?:**
(*days of the week and hours of the day*)

_____

_____

_____

10. **What specialty interests, research or other projects do you have?** _____

_____

11. **Which hospital are you *principally* affiliated with?** _____

12. **Do you have a faculty appointment at a Chicago teaching institution?**

___ No faculty appointment in Chicago

___ UIC: Level _____

___ Other institution: Name/level _____

Thank you very much for your cooperation.

12/94

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ENTERING MI COM SPECIALTY CHOICE SURVEY

Social Security Number: _____ - ____ - _____

Please review the list of specialties below.

1. Allergy and Immunology
2. Anesthesiology
3. Colon and Rectal Surgery
4. Dermatology
5. Emergency Medicine
6. Family Practice
7. Internal Medicine - General
8. Internal Medicine - Sub specialty
9. Medical Research
10. Medicine/Pediatrics (MedPeds)
11. Neurology
12. Neurological Surgery
13. Nuclear Medicine
14. Obstetrics and Gynecology
15. Ophthalmology
16. Orthopedic Surgery
17. Otolaryngology
18. Pathology
19. Pediatrics - General
20. Pediatrics - Sub specialty
21. Physical Medicine and Rehabilitation
22. Plastic Surgery
23. Preventive Medicine and Public Health
24. Psychiatry
25. Radiology
26. Surgery
27. Thoracic Surgery
28. Urology
29. Other _____

1. **If you have DECIDED on a specialty, please write the speciality on the line below:**
   (include the specialty NUMBER)

   Speciality #_____

2. **If you have <u>NOT</u> DECIDED on a specialty, rank in order of interest those you are considering:**
   (include the specialty NUMBER)

   First #_____

   Second #_____

   Third #_____

Circle how much experience you had *before medical school* in the following:

1. Patient care	None	Less than 6 months	6 months to 2 years	More than 2 years
2. Biomedical techniques	None	Less than 6 months	6 months to 2 years	More than 2 years

Did anyone influence you to go into medical school? No Yes

If yes, circle: Parent Other family member Teacher Friend My doctor Other_____

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APPENDIX III

Evaluation Results

ITEM AND PERSON MAP EXPLANATION

The tables on the following pages are the results of Rasch-analyzed survey data. Survey items are listed in hierarchical order -- from bottom to top -- according to Rasch scaling of how students (or preceptors) responded.

Start reading the maps from bottom. Items placed nearer the bottom are experienced more often and to a higher degree. As items place higher on the map, respondents experience them less often and to a lesser degree.

Important to note is that the spacing between the items depicts *how much* difference there is between items. This means, items grouped together calibrate at the same level. Larger distances between items indicate a larger jump in students' or preceptors' levels of experience.

Map of M1 and M2 Students' Involvement in LPC Opportunities

March 31, 1994
n = 103 of 132

The LPC program is an opportunity to:

More Involved

4. participate in patient care decisions — *35% of students fairly often or very often*

8. relate class lectures to clinical experience
7. learn about patients' social community
5. interact with other health care professionals
7. learn about patients' non medical problems — *46% of students fairly often or very often*

6. explore a career in primary care — *84% of students fairly often or very often*

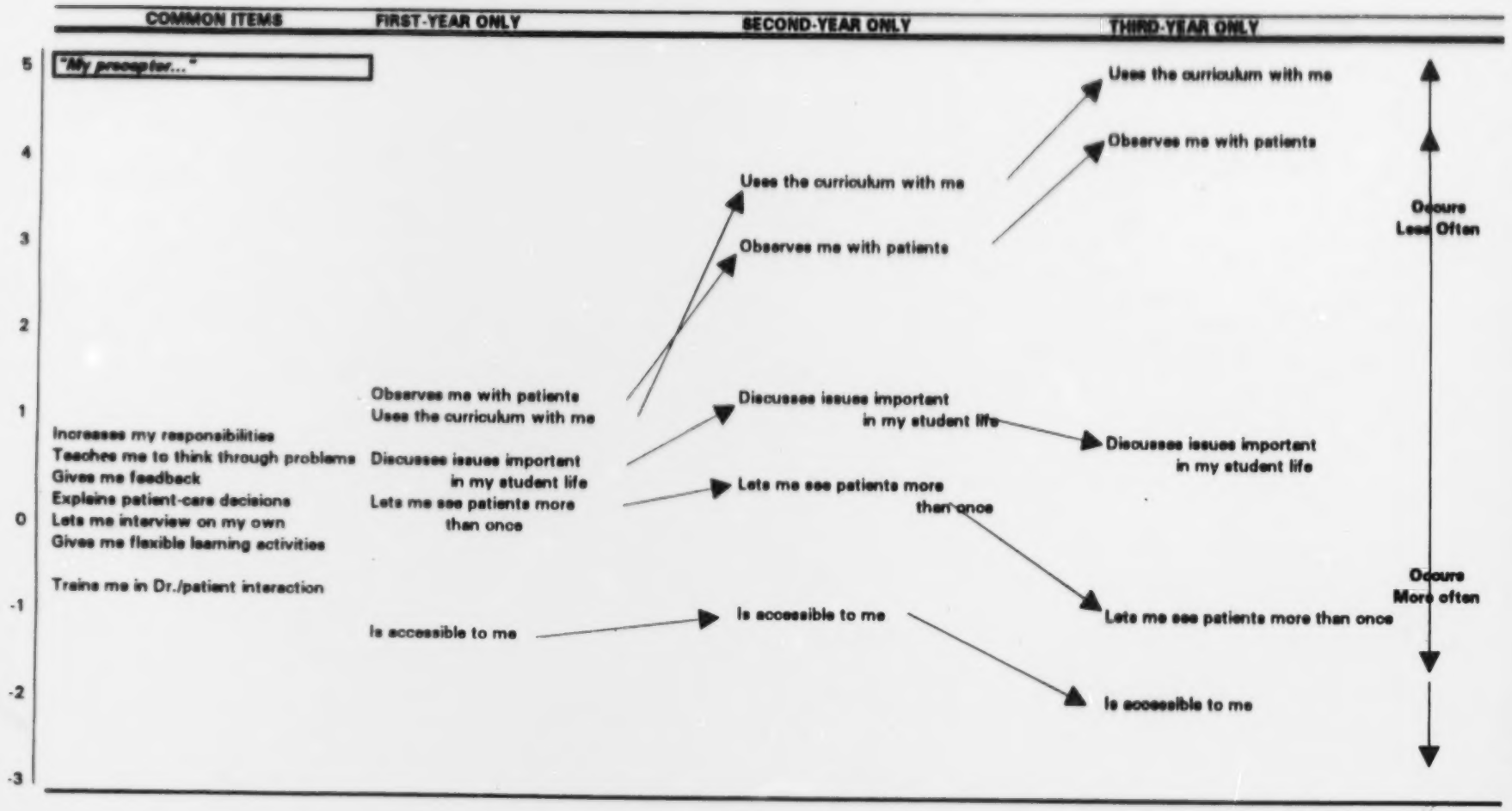
Less Involved

2. learn about primary care
1. be more comfortable with patients — *100% of students fairly often or very often*

Longitudinal Primary Care Program

MY PRECEPTOR

Cross-sectional Comparison - M1/M2/M3 in 1994-95



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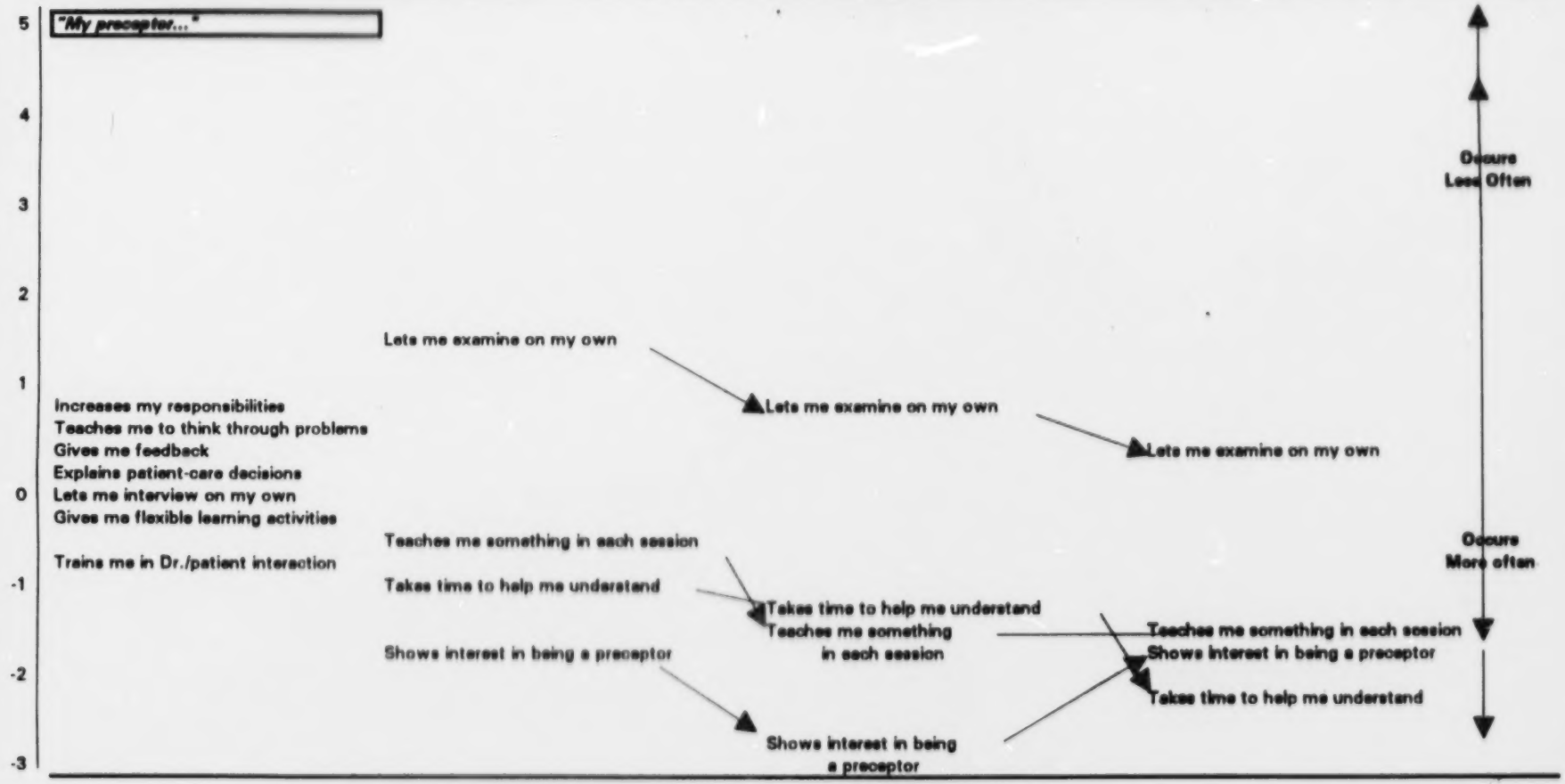
Longitudinal Primary Care Program

MY PRECEPTOR

Cross-sectional Comparison - M1/M2/M3 in 1994-95



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INFLUENCES ON SPECIALTY CHOICE -- Entering M1 Class
September, 1994
n = 185

18. Minimum exposure to HIV-AIDS

12. Amount of educational debt
1. Not too demanding
8. Government health care reform
11. Encouragement from fellow students
15. Ease of getting residency

1% of students "Quite a bit"

3. Income
6. Prestige
14. Lack of overcrowding
9. Encouragement from faculty
10. Encouragement from residents
13. Opportunity for research

5% of students "Quite a bit"

5. Predictable work hours
4. Physicians I admire
2. Courses in subject matter
19. My clerkship experiences

35% of students "Quite a bit"

7. Intellectual content
17. Enjoyment of patient types.
16. Fits my personality

90% of students "Quite a bit"

INFLUENCES ON SPECIALTY CHOICE -- M3 CLASS
May, 1994

19. Minimum exposure to HIV-AIDS

13. Amount of educational debt

Socio/political Milieu

11. Encouragement from fellow students
14. Opportunity for research

3% of students "Quite a bit"

8. Government health care reform
15. Lack of overcrowding
16. Ease of getting residency

---

3. Income
1. Not too demanding

Self-Image

6. Prestige

16% of students "Quite a bit"

9. Encouragement from faculty
10. Encouragement from residents

---

2. Courses in subject matter

Professional Foundation

4. Physicians I admire
5. Predictable work hours

61% of students "Quite a bit"

20. My clerkship experiences

---

7. Intellectual content

Personal Compatibility

18. Enjoyment of patient types

100% of students "Quite a bit"

17. Fits my personality

Preceptor Survey

n = 103

Administered May/June, 1994

4

I became a preceptor to:

2. Write grants
3. Write and publish papers
4. Present my ideas at professional meetings

4% of preceptors
Agree or Strongly Agree

3

2

3. Advance my clinical academic status

2. Be associated with a university (non UIC staff only)
5. Meet new colleagues

21% of preceptors
Agree or Strongly Agree

1

0

4. Develop myself professionally

6. Encourage students to choose my specialty
1. Improve my teaching

76% of preceptors
Agree or Strongly Agree

-1

-2

---

5. Give to others some of what I received from medicine
7. Contribute to the development of young professionals
1. Teach medical students

100% of preceptors
Agree or Strongly Agree

-3

4

Preceptor Survey

n = 103

Administered May/June, 1994

For students, the major aims of the LPC program should be to:

2

3. Have a three-year apprenticeship

50% of preceptors
Agree or Strongly Agree

4. Improve physical exam skills

1

---

7. Acquire mentor role model

0

8a. Learn about chronic illness

5. Increase awareness of community factors in health care

86% of preceptors
Agree or Strongly Agree

1. Improve interviewing skills

8c. Learn about seeing patients repeatedly

8b. Learn about preventive care

-1

6. Participate in the "real world" of medicine

100% of preceptors
Agree or Strongly Agree

2. Understand primary care

-2

Preceptor Survey

n = 101
Administered May/June, 1994

At this time, my PROBLEMS with the program are:

1.5 — 2. My student is uncomfortable around patients

25% Strongly Disagree
73% Disagree
2% Agree

3. Patients are uncomfortable around my student

1 — 4. The costs burden my practice

.5

6. Clerkships undo what I teach in the LPC

10% Strongly Disagree
80% Disagree
10% Agree

0 — 1. Being a preceptor demands too much time

-.5

7a-c. I need more training to teach first, second and third-year students

5% Strongly Disagree
75% Disagree
20% Agree

-1 — 5. I'd like more contact with the College of Medicine

-1.5

APPENDIX IV

Dissemination Activities

Longitudinal Primary Care Program

List of articles and presentations disseminated in 1995

Published papers:

"Communication as an Essential Part of Program and Institutional Development," Maurice Lemon, Annette Yonke, Bonnie Roe and Richard Foley. Academic Medicine 70 (1995): 884-886.

A Longitudinal Primary Care Program in an Urban Public Medical School: Three Years of Experience," Joshua Freeman, Crystal Cash, Annette Yonke, Bonnie Roe, Richard Foley. Academic Medicine 70, No. 1 Supplement (1995): S64-S68.

Professional association presentations:

"Tracking Medical Students' Mentor Relationships in a Longitudinal Primary Care Program," Bonnie Roe, Maurice Lemon, Richard Foley, Annette Yonke, Benjamin Wright. AAMC refereed poster session, October 1995

"Tracking Medical Students' Mentor Relationships in a Longitudinal Primary Care Program," Bonnie Roe, Maurice Lemon, Richard Foley, Annette Yonke, Benjamin Wright. Midwest Objective Measurement Seminar, December 1995

"Recruiting 300 Volunteer Preceptors," Annette Yonke, Les Sandlow. AAMC booth, October 1995

"Faculty Development for Preceptors," Joyce Smith, Richard Foley. AAMC booth, October 1995

"Interdisciplinary Generalist Curriculum at Ten Demonstration Schools," J.P. Whalen, Richard Foley, Annette Yonke (in conjunction with nine other schools). AAMC booth, October 1995

"Physician Motivation to Serve as Preceptors in a Longitudinal Primary Care Program," JP Whalen, B. Roe, R. Foley, A. Yonke, M. Lemon. Society of General Internal Medicine. May 4, 1995.

"Interdisciplinary Collaboration in Generalist Training." J.P. Whalen and Ardis Davis. Special Interest Breakfast at Teaching Internal Medicine Symposium, Seattle, Wa. September 15, 1995.

"Implementation Issues in a Longitudinal Primary Care Program." J.P. Whalen, organizer, presenter and group discussion leader: Clerkship Directors in Internal Medicine Sixth National Meeting. Seattle, Wa. September, 1995.

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A LONGITUDINAL PRIMARY CARE PROGRAM IN AN URBAN PUBLIC MEDICAL SCHOOL: THREE YEARS OF EXPERIENCE

JOSHUA FREEMAN, MD,
CRYSTAL CASH, MD,
ANNETTE YONKE, PhD,
BONNIE ROE, MA,
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Joshua Freeman, MD, Crystal Cash, MD, Annette Yonke, PhD, Bonnie Roe, MA, and Richard Foley, PhD

A Longitudinal Primary Care Program in an Urban Public Medical School: Three Years of Experience

ABSTRACT

The experience of the University of Illinois at Chicago's College of Medicine with implementing a pilot generalist program focuses on institutionalization and management. Various features of the program make it an interesting case study: It is inter-disciplinary, comprising pediatricians, general internists, and family practitioners; students join the program in the autumn of their first year; and it is changing from a voluntary to a required, institutionally ingrained course of study. The difficulties and procedures encountered in making room for an interdisciplinary primary care program in a traditional medical school curriculum are discussed.

Acad. Med. 70, Supplement (January 1995): S64–S68.

As reform of the nation's health system becomes a national priority, the specialty choice of physicians produced by U.S. medical schools has taken on increased urgency. Health reform plans call for an increase in the number of primary care physicians. Rivo et al.[1] cite four major reports issued in 1992–93 (e.g., the report of the Council on Graduate Medical Education) calling for the reallocation of Medicare funds for medical education to generalist specialties, development of a national commission to allocate residency slots, and inclusion of ambulatory care sites as major locations for graduate medical education. These recommendations come at a time when the number of general physicians is lower than it was 25 years ago. While a national physician workforce of 50% primary care physicians is cited as a desirable goal, Kindig[2] points out that even if 50% of medical school graduates were to begin entering primary care immediately, this objective would not be reached until the year 2040. Medical schools, therefore, must address immediately the specialty choices of medical students.

Influences on students' specialty choices fall into three categories. Input factors are characteristics students bring with them as they are selected by and admitted to medical school: students' expressed preference, prior experience, place of upbringing, interest in working with people as opposed to technology interests. Output factors are the professional and societal circumstances that characterize the experience of physicians in each specialty, such as lifestyle, income, status, and peer respect. It is, however, the medical school experience itself—the extent to which the curriculum and values of the medical school reinforce or encourage students to consider primary care careers—that has the most significant impact on specialty choice.[3–8]

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In this article we will examine the preliminary stage of an interdisciplinary generalist program at the University of Illinois at Chicago's College of Medicine (UIC–COM) that began before the recent generalist education initiative. We report our planning framework and conclude with a discussion of implementation issues for curriculum reformulation and implementation.

Planning Framework

In 1991–92, the UIC–COM began the Longitudinal Primary Care (LPC) Program as a preliminary step in revising a very traditional medical school curriculum. Based upon our previously reported planning framework,[9] we began a process to formulate a community-based program that addresses the major interacting variables of setting, program management (encompassing institutional approval), curriculum, instruction, and student and program evaluation. Ours is one of the largest medical schools in the country, admitting approximately 180 students yearly.[10] The LPC program will be described according to these variables.

Setting

The current LPC program now provides a three-year student-preceptor relationship beginning in the first year of medical school. Students are placed with a family physician, general internist, or general pediatrician within the metropolitan Chicago area. First-year (M–1) students spend one half-day per month, second-year (M–2) students one half-day twice a month, and third-year (M–3) students one half-day each week with their preceptors.

Institutional Approval and Program Management

Although the faculty recognized that broad changes were needed in the curriculum to supply physicians for the future, transformation was not easy. Preliminary groundwork first occurred at the institutional level. In 1988, the college's Curriculum Committee held a series of discussions on the need for curricular reform, which led to the formation of the Curriculum Overview Subcommittee to examine the entire undergraduate curriculum. The committee's report, issued in September 1990, called for changes in both the basic science and clinical years that were evolutionary rather than revolutionary.[11]

The report emphasized increasing exposure to primary care and clinical medicine from the beginning of medical school, with ample opportunities for students to correlate basic science material with clinical experiences. The report further recommended the implementation of a required four-week family practice clerkship for all third-year students and a voluntary longitudinal primary care pilot program to be staffed by volunteer general internist, general pediatrician, and family practice preceptors. The faculty recognized the need for greater exposure to primary care role models and patient/community-centered learning in the context of community-based health care. LPC practice sites, therefore, include community health centers; private, solo, and group practices; and community and university hospitals. After much debate, the Curriculum Committee members adopted these recommendations.

The design, development, and implementation of the LPC program became the task of the Curriculum Committee's Primary Care Subcommittee, an interdisciplinary group of academic and clinical faculty representatives based at the college and at its affiliated health care sites. A series of retreats for faculty members, including representatives of the Illinois Primary Health Care Association, laid the groundwork for the program. Seven task-specific working groups were created: M–1, M–2, and M–3 curriculum groups, faculty development, evaluation, site selection, and project management.

The LPC pilot program began in the 1991–92 academic year with 30 M–1, 16 M–2, and 8 M–3 students selected from 150 student volunteers. In subsequent years, enrollment in the program increased considerably. The number of volunteers far exceeded the available places, which were limited by the number of primary care preceptors. In its final pilot year, the program now has 160 students and 140 preceptors at 85 sites. Only 15% of the preceptors are UIC–COM faculty, with the remainder coming from community-based sites distributed widely across the metropolitan Chicago area; 33% of the preceptors are family practice physicians; 44% are general internists, and the remaining 23% are general pediatricians.

Curriculum

Each interdisciplinary curriculum working group developed learning goals and objectives for the M–1, M–2, and M–3 years. Although the program currently does not replace or integrate courses now required of students (such as Introduction to the Patient, Introduction to Clinical Medicine, and Preventive Medicine), future curriculum planning will address more integration of existing courses with the LPC program. Through collaborative work, however, the strong internal medicine influence represented in the first drafts of the curriculum was modified by family practice and pediatric faculty members so the LPC program would apply across age groups and sites. Such curricular changes continue to evolve.

The curriculum for the M–1 year, "The Doctor and the Patient," focuses on interviewing skills only. Students learn about the meaning of illness to the patient in the context of the patient's family, community, and culture. First-year students are with their preceptors for nine, four-hour sessions over the course of a year. Cohen-Cole's *The Medical Interview: The Three Function Approach*[12] is used as a core text, supplemented by other appropriate readings from the generalist literature.

"The Patient, Family and Community's Health, Risks, and Common Medical Problems," the curricular theme for the M–2 year, emphasizes risk assessment issues for both the patient and community. These include the health status of the community, its culture, and the use of community resources. Second-year students begin to develop a panel of patients whom they see over time. M–2s have 18 four-hour sessions with their preceptors.

In the third year, "The Doctor, Patient and Continuous Care" emphasizes continuity of patient care with an emphasis on the relationship over time and a team approach to primary care. Content is based on the top 20 health problems in the U.S. National Ambulatory Care Survey.[13] M–3 students attend weekly half-day sessions.

Instructional Factors

In 1992, faculty development sessions were conducted at two-day, off-campus retreats. Program planners realized, however, that busy office practices contributed to low attendance. The format also was expensive and unrealistic. Subsequent faculty development efforts were supported by grants from the Fund for Improvement of Post-Secondary Education and the Chicago Community Trust. Input from faculty and preceptors in all three disciplines was crucial to providing comprehensive and uniform training at the widely diverse clinical sites. Under the present format, voluntary preceptors are now requested to attend a Curriculum Implementation session and one additional session, either "Teaching Medical Interviewing Skills" or "Clinical Feedback/Supervision." Sessions are half-days, scheduled far in advance, and repeated to maximize attendance. Continuing medical education credit is available for all sessions. During the 1993–94 academic year, 67% of the 140 preceptors attended one or more of the faculty development programs. Scheduling problems became apparent as some programs offered in the evenings and on Saturdays were canceled because of extremely low enrollments. Efforts are now under way by the faculty development working group to design self-instructional programs with CME credit to target those preceptors who cannot leave their practice for one half-day.

Student and Program Evaluation

Through a process of formative studies, the plan for researching various aspects of the program has been set. Evaluation of student performance will begin when the program becomes compulsory. Examination of student and preceptor experiences, attitudes, and motivations began in the program's first and second years through personal interviews and some written surveys. This feedback helped shape the program's beginnings and contributed to the construction of a new generation of written questionnaires.

In 1992–93, 64 of 95 preceptors responded to an attitudinal survey of their expectations of and motivations for participating in the LPC program. The results showed that most are participating for altruistic reasons, with little expectation of personal gain. These data have guided current plans to recruit new preceptors. Among the most relevant findings (presented here with mean scores based on a five-point Likert scale, with one being low and five being high) are the following.

The highest-rated motivations for participating in the program were "enjoyment of teaching medical students" (mean = 4.7) and "give back something to the profession" (mean = 3.8). The lowest-rated motivator was "opportunity to pursue new career options" (mean = 2.1). The preceptors' expectations were highest for both "contribute to students' profes-sional development" (mean = 4.7) and "influence students toward choosing primary care specialties" (mean = 4.1). Grant writing and presenting or publishing papers were low expectations (mean = 1.2), as were new career options (mean = 2.1).

One survey area showed a trend that may reflect an influence of the LPC program on students. The students ranked a number of curriculum items in terms of both their own priorities and their perceptions of where these items stood in the College of Medicine's priorities. Some items showed a large difference: the students placed a much higher priority on "involvement with neighborhood clinics, schools, churches" than they thought that the college did (mean of 1.3 points higher), and similar trends were observed for "treating patients as individual persons" (mean increase of 0.8 points) and "common medical problems" (mean increase of 0.6 points).

An important evolution in questionnaire design and analysis occurred this year with the program's adoption of Rasch model analysis[14] and related measurement practices. The Rasch measurement model is a computer-based, log-linear probability model that, essentially, is an efficient bookkeeping tool for quantitative data analysis. Rasch analysis measures person performance and tracks individual respondents. It also calibrates survey or test items on a hierarchical difficulty scale that places items in relation to one another.

A prime benefit is in the presentation of the research results: A total picture of the relationship among survey items and among people makes it simple to grasp the *meaning* of an evaluation, which contributes to fruitful planning and decision making.

The student and preceptor questionnaires were reconstructed in terms of these new analysis methods and will be administered annually so that effects of the program can be compared over time. Focus group interviews for each student class will augment the survey data.

Implementation Issues

The implementation of a new and innovative curriculum such as the LPC program in a traditional medical school can be expected to proceed through a series of developmental stages or steps. For Scheirer[15] these are decision to adopt, assembling resources, role change, problem solving, and institutionalization. From a systems perspective, each stage can be viewed at different macro, intermediate, and individual levels. Within the medical education context, Sharf and colleagues[16,17] propose that problem solving takes place at all developmental stages and suggest a matrix approach in which the issues confronting players at each level and at each stage of the developmental process can be identified. The LPC program, as a pilot project, can be viewed as being in a stage of problem solving and institutionalization. All stakeholders, from the dean to the students, are subject to the problem-solving process. A few specific implementation problems are discussed next.

At the individual level, students' problems consist of real or perceived conflicts with other areas of the curriculum. In the preclinical years, this manifests mainly at examination time, although for some students there is anxiety about missing classroom time whenever they go to their preceptor sites. In the M–3 clinical year, conflicts are with various inpatient rotations. Overt or implicit messages come from attending physicians and more often from residents who say that ward work is more important and that students' grades may suffer if they leave for their LPC program. Typically, the message is that students will miss an important educational experience if they leave the clerkship a half-day weekly. Because the program is a pilot and participation in the LPC is not the norm, LPC program students may be perceived as different, thereby requiring special treatment.

Many of these problems are not different from those confronted by family practice residents as they rotate through the inpatient services of other departments and are called on to leave for their continuity clinics. Strategies used by family practice residencies have been helpful to the LPC. These include firm and repeated messages from the macro level of the dean and department heads endorsing the importance of LPC program training. Other explicit actions such as making ward residents responsible for sending the student to the LPC site or sanctions for any actual or threatened downgrading for participation in the LPC also have been employed. This problem will have to be reconciled completely once the LPC program is institutionalized and all students are required to participate.

At the individual level, problems involving preceptors have been identified by program administrators and the faculty development group. A core problem is simply recruiting the number of preceptors for such a large program while ensuring both the quality and consistency of the student experience among diverse specialties, practices, locations, and patient groups. In addition, the experience of teaching M–1 and M–2 students in the clinical setting is new even for most experienced preceptors. Although the curriculum for the LPC program has been designed and revised to provide an effective model, its effective use must be taught and busy preceptors are not always available for faculty development. As noted earlier, however, a variety of faculty development experiences, including self-instructional programs, are being developed to address this issue.

While preceptors did not identify financial remuneration as a priority, the fact that the program was unable to compensate them for loss of practice income may have impacted not only on their participation in the program, but in particular on their participation in faculty development sessions.

As the program is expanded to all students, problems will exist at the macro, intermediate, and individual levels. At the macro level is the problem of funding from the dean's budget to implement a program of this size. At the intermediate level, the primary care subcommittee will need to determine how the LPC program will become a course, what hours and grades need to be assigned to it, and what criteria will be used to determine successful completion of the experience. Beyond the individual concerns already mentioned, we expect there will be varying preceptor and student reactions when the program moves from a voluntary to a required experience.

Analysis and Conclusions

Medical schools have a major responsibility for bridging the gap between societal health care needs and the types of providers being produced. For this bridging to occur there must be an institutional objective not only to select students interested in primary care careers, but also to provide mentors and appropriate educational opportunities for them. The Longitudinal Primary Care program at UIC–COM represents one such undertaking. The important defining characteristics of the LPC program are:

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(1) The longitudinal nature of the program, which permits students to experience primary care in an appropriate context rather than in an intensive block rotation better suited for inpatient care. It further provides students with the opportunity for a long-term relationship with a clinical mentor who can provide invaluable support throughout the medical school experience.

(2) The interdisciplinary nature of the program, which is developed, implemented, staffed, and evaluated by family physicians, general internists, and general pediatricians in collaboration with the Department of Medical Education faculty.

(3) The "right away" nature of the program, in which students begin the LPC program in September of their first year. Unlike other programs that start later in medical school, an early beginning gratifies students with an immediate clinical experience. It not only reinforces many students' early interest in primary care, but emphasizes the school's commitment.

(4) The community-based nature of the program. Only 15% of the preceptors are full-time university faculty members, while most are in community-based private practices, HMOs, or community health center sites. This arrangement provides an important message about *where* primary care occurs and is reflected in preliminary evaluation results in which students demonstrated an increased appreciation of the role the community plays in health care delivery.

While many of the factors that affect specialty choice are outside the direct control of colleges of medicine and will be addressed by regulatory and financing bodies, one factor that is controlled by medical schools is the curriculum and the extent to which that curriculum encourages or discourages the choice of primary care. The development, implementation, and fluid integration of experiences such as the LPC program into the educational curriculum constitute an important way in which this can be done. In 1994, the LPC became a required course for students at UIC-COM, beginning with M-1 students in the class of 1998. There are currently over 250 preceptors working with nearly 300 students at 168 sites.

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